Spring 2020

A Review of The Impact of the Top Ten Leading Causes of Death Within the United States of America

Shelby L. Moss
Murray State University, shelbylmoss16@gmail.com

A Review of The Impact of the Top Ten Leading Causes of Death Within the United States of America

By
Shelby Moss

Project submitted in partial fulfilment of the
requirements for the
Bachelor of Integrated Studies Degree

Murray State University
April 3, 2020

Abstract

The purpose of this research paper explores the impact that the top 10 leading causes of death have on the United States of America. Within this exploration, statistics, causes, signs, symptoms, and the leading preventions are identified along with any other information seen as relevant. The top 10 leading causes of death that are discussed are: Heart disease, cancer, unintentional injuries, chronic lower respiratory disease, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease, and suicide. This information was obtained through research of primary studies, peer reviewed studies, meta-analysis, books, and position statements by accredited hospitals and health organizations. Throughout this research, it was found that majority of these causes are preventable through standard recommended healthy lifestyle guidelines. In conclusion, these leading causes of death are having a major impact on the country when the prevalence of majority of them can be decreased due to one's own actions.

Acknowledgments

First off, I would like to thank my thesis advisor Dr. Tricia Jordan, for her continued guidance, attention to detail, and support throughout this entire research and writing process. Next, I would like to thank any and all professors from all of my previous classes for providing me with the knowledge that I have obtained though out my four years of study at Murray State University. I would like to thank my academic advisor, Marla Poyner, guiding me through the latter part of my academic career here at Murray State University. I would like to say a thank you to my boyfriend, Chase Irvin, for always pushing me to reach for my full potential and never allowing me to quit. Lastly, I would like to thank my mom, sister, brother, and close, supportive friends for always lending me encouragement when it was needed the most.

Table of Contents

List of Figures

Introduction

The United States of America, despite having the most expensive health care system, ranks last overall compared to the other top six industrialized countries – Australia, Canada, Germany, the Netherlands, New Zealand, and the United Kingdom – on measures of quality, efficiency, access to care, equity, and the ability to have long, healthy, and productive lives (The Commonwealth Fund, n.d.). While healthcare is not the best in the United States, it is the inability of American citizens to live long, healthy lives that is of the upmost concern. A great example of this concern falls within physical activity where more than 80% of adults do not meet the guidelines for both cardiorespiratory and muscle-strengthening activities (U.S. Department of Health and Human Resources, n.d.) However, some of these issues stem from the government where only about one in five homes have parks within a half-mile and only 6 states require physical education in every grade, K-12 (U.S. Department of Health and Human Resources, n.d.).

This research paper includes research presented on the most lethal diseases and incidents that claim thousands of American lives every year. The top ten leading causes of death in the United States includes heart disease, cancer, unintentional injuries, chronic lower respiratory disease, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease and suicide (Centers for Disease Control and Prevention, 2019). Each of these diseases or incidents have lasting effects on American citizens and their families. To this extent, research related to each of these causes should continue to be reviewed as new research is presented every day. Research review is also important in continuing to bring awareness to these diseases and incidents and how much they effect American citizens every day.

Heart Disease

In recent years, heart disease has slowly been on the rise within the US population. Today, heart disease has now reached the top spot as the leading cause of death (Center for Disease Control and Prevention, 2019). This ranking is inclusive for men, women, and different racial and ethnic groups (Centers for Disease Control, 2019). About 1 in every 4 deaths each year are in result of heart disease; this equals out to about 647,000 Americans (Centers for Disease Control, 2019). Heart disease is related to any different diseases or abnormalities. These include coronary artery disease, heart arrhythmias, or birth defects of the heart (Mayo Clinic, 2018).

Heart disease is often referred to as cardiovascular disease, which involves narrowing or blockages of the major blood vessels within the heart (Mayo Clinic, 2018). These blockages will then restrict blood flow from pumping throughout the rest of the heart and ultimately restrict the adequate amount of blood received from the lungs and pumped to the rest of the body (Cleveland Clinic, n.d.). These blockages and lack of blood and oxygen supply to the body can have some devastating and traumatic outcomes such as heart attack or stroke (Mayo Clinic, 2018).

There are several different factors that can lead to one's development of heart disease. One of the leading causes would be atherosclerosis (Frostegard, 2013). Atherosclerosis is a buildup of fat deposits that can come from a lack of exercising, smoking and an unhealthy diet (Mayo Clinic, 2018). These factors will eventually lead to the blockage and hardening of the artery making it difficult for blood to flow through and reach its destination (Mayo Clinic, 2018). Over time, this can lead to chronic heart disease and cause a heart attack, stroke or death. Unhealthy diet is another cause contributing to chronic heart disease. An unhealthy diet, obesity and lack of exercise are all factors that contribute to chronic heart disease. Unhealthy diets are low in fruit and vegetable intake, high in products that contain a lot of low-density cholesterol

and high in saturated fats. This is because these foods can increase the fatty deposits that are within the arteries causing even more blockages (Mackay & Mensah, 2004). Obesity is another major risk factor that can lead to atherosclerosis and chronic heart disease. According to the Surgeon General (1996), low levels of activity resulting in fewer calories used than consumed is what contributes to the high obesity rates that are still continuing to rise within the United States (Eckel & Krauss, 1998). The increase in sedentary lifestyle, including more desk-based jobs, and genetics play a role in this lack of calorie burn (Eckel & Krauss, 1998). Therefore, this increase of calories and decrease of exercise is what will cause the overall weight of an individual to increase and, if not maintained or lost, will lead to obesity. This will then lead to atherosclerosis, as discussed previously, that will cause more buildup of plaque and lack of adequate blood flow to the body (American College of Cardiology, 2018). Inadequate amounts of exercise are another factor that contributes to all of the above. This is because if one is not exercising then one isn't burning calories from the poor nutritional food. This leads to obesity which also causes atherosclerosis and leads to heart disease. The last major factor is smoking. According to Mackay et al. (2004), many believe that the major risk from smoking is lung cancer, but their research has shown that far more smokers develop heart disease. Smoking has a few mechanisms that will lead to the development of heart disease. Smoking will damage and thin the cells lining the esophagus (endothelium) which would cause it to tear, and in turn, allows for more blockages (Mackay et al., 2004). Smoking increases cholesterol, which is what forms plaque and build ups in the arteries and causes atherosclerosis (Mackay et al., 2004). Increased clotting, or clustering of the blood vessels, will also lead to blockages (Mackay et al., 2004). So far, the factors that have been mentioned are all modifiable factors, meaning that an individual is able to change them (British Heart Foundation, n.d.). On the other hand, some non-modifiable factors can also

lead to the development of heart disease. These includes genetics, family history or prevalence within family, ethnicity, and age (British Heart Foundation, n.d.). Research is shown that there are specific genes that can be passed down through generations that can cause high blood pressure or cholesterol, which as explained previously, can be a cause of heart disease (British Heart Foundation, n.d.). In terms of ethnicity, different ethnic groups have different rates of disease prevalence. For example, heart disease, or cardiovascular disease, is the leading cause of death among African Americans (Yusuf et all., 2001). Although these factors are not changeable, there are still actions that can be taken to try and decrease the risk or prevent the actual disease from forming which will be discussed later on.

Knowing the signs and symptoms of heart disease are just as important as knowing the causes. It is easier for one to remember a short list of signs and symptoms rather than a long list of causes, which can help to identify what is happening with their body if they were to experience these symptoms and seek the proper care in the case that this was to occur. In seeking proper care, this could change the outcome of their care and the severity of their heart disease the earlier that it is caught. Some of the common signs and symptoms of heart disease are similar to those of heart attack, seeing as chronic heart disease can lead to heart attack and/or stroke. These signs and symptoms include chest pain, chest tightness, chest pressure, chest discomfort, shortness of breath, pain of legs or arms, weakness of legs or arms, coldness of legs or arms, and pain in the neck, jaw, throat, upper abdomen, or back (Mayo Clinic, 2018). However, there are differences between the symptoms men experience and the symptoms women experience. According to Milner et al. (1999), chest pain was the most frequently reported symptom in both women and men while shortness of breath was the second most reported symptom. However, women are more likely to present with back pain, nausea and/or vomiting, shortness of breath,

and indigestion than men are (Milner et al., 1999). Although cardiovascular disease is so prevalent, it has been shown that the signs and symptoms are not well known among various age groups. Greenlund et al. (2004) states that emergency cardiac care is partly dependent on early recognition of symptoms and immediate action by calling emergency services; however, that symptom recognition and knowing when to call 9-1-1 was lower among men than women, different ethnic groups, and younger individuals (Greenlund et al.,2004). Individuals who are diagnosed with high blood pressure, high cholesterol or other risk factors of heart attack or heart disease were not more likely to recognize these symptoms than those who did not have these factors (Greenlund et al., 2004). This is a direct reflection on prevention of the disease process.

Disease prevention is arguably the most important part of the disease management process. It is not enough to wait until one is sick and then attempt to control it, but it can actually be crucial to protect one's self before even contracting the disease. A study concluded that there needed to be more public health efforts put in place to help individuals recognize the symptoms and risk factors prior to a major heart health event (Greenlund et al., 2004). The first step in the prevention of heart disease would therefore be education and health promotion. This includes activities that have helped those identify what heart disease is, risk factors, and symptoms to be on the lookout for. Other prevention methods are focused on the risk factors and/or causes of heart disease. The daily recommendation for exercise is 150 minutes of moderate intensity aerobic activity or 75 minutes of vigorous aerobic activity per week (Stewart et al., 2016). DASH diets are being recommended which are diets that are low in sugars and saturated fats and high in vegetables, fruits and whole grains (Stewart et al., 2016). This diet is shown to lower blood pressure and low-density lipoprotein cholesterol, which are risk factors for cardiovascular disease (Stewart et al., 2016). There is evidence of other diets that help to lower heart problems

within those who are at risk (Stewart et al., 2016). But, in general, a consensus exists to recommend diets that are high in fiber, fruits and vegetable intake, and low in simple sugars and salt (Stewart et al., 2016). Smoking cessation is one of the best prevention strategies for CVD. It is the single most cost-effective intervention where benefits can be seen within just months of cessation (Stewart et al., 2016). Although there are no specific guidelines on how to maintain a healthy weight, it is recommended that BMI is a good predictor of cardiovascular risk (Stewart et al., 2016). The aim of prevention is to reduce the risk and, therefore, reduce the national morbidity rate (Stewart et al., 2016).

In the end, heart disease can be prevented if one has the correct and accurate information with enough time to create change in their lifestyle and habits. Being able to identify what heart disease is, what the potential outcome are, what the signs and symptoms are, and when to ask for help are all key factors that everyone should be aware of because of its prevalence within the United States. With these actions towards prevention, the hope is that there will be a decline in the prevalence of diagnosis and death due to chronic heart disease.

Cancer

The second leading cause of death in the United States is cancer. In 2019, it was estimated that 606,880 people will succumb to cancer (National Cancer Institute, n.d.). Cancer can be a very long and excruciating disease. The disease itself can have a huge and widespread impact on the person who has been diagnosed with cancer, but also those who are around them as their caretakers, family, and/or support system. According to the Mayo Clinic (2018), cancer is defined as the development of abnormal cells that divide uncontrollably and can infiltrate and destroy normal body tissue. Cancer also has the ability to grow and then metastasize, or move, rapidly to other areas of the body (Mayo Clinic, 2018). According to the National Cancer

Institute (2019), breast cancer is the most common type of cancer within the US; however, some other types of commonly diagnosed cancers include bladder cancer, breast cancer, colon and rectal cancer, endometrial cancer, kidney cancer, lung cancer, melanoma, and cancer of the liver (National Cancer Institute, 2019).

Although cancer signs and symptoms can vary based on what part of the body the cancer cells have infected, some over all signs and symptoms of cancer are: fatigue, the development of a lump or an area that thickens and can be felt, drastic weight changes, changes of the skin such as yellowing, darkening, or redness, sores that won't heal, changes to existing moles, changes in bowel or bladder habits, persistent cough or trouble breathing, unexplained bleeding or bruising, and fevers or night sweats (National Cancer Institute, 2019). Just like symptoms are specific to the type of cancer in specific areas of the body, the same can be said for causes of specific cancers. There are, however, still some general or common causes that can lead to the majority of cancers. The preventable common causes of cancer are smoking, heavy alcohol consumption, inactivity, and poor nutrition (Mayo Clinic, 2018).

Since the discovery of the association between smoking and cancer, it has remained a leading cause. Cancer is formed by carcinogens, which is a substance or agent causing cancer (Merriam Webster, n.d.). Cigarettes contain several known carcinogen-related chemicals. These damaging chemicals attack the epithelium lining within the body and can cause oxidative stress and direct damage or mutation of DNA that can then lead to the growth of abnormal cancer cells (Haung, et. al., 2011). These effects can not only happen within the person who is physically smoking the cigarette themselves, but also those around them through passive smoking or second-hand smoke (Trichopoulous, et. al., 1996). Heavy alcohol consumption is also carcinogenic. According to the Centers for Disease Control and Prevention (n.d.), when one

drinks alcohol, their body breaks it down into the chemical Acetaldehyde. These chemicals damage DNA and can prevent the body from repairing damage which can then cause the cells to grow out of control and into cancerous tumors (Centers for Disease Control and Prevention, 2020). This type of chemical is not specific to any type of alcohol, and is even found in red wine (Centers for Disease Control and Prevention, 2020). The more alcohol an individual consumes, the more that you are at risk for developing cancers (Centers for Disease Control and Prevention, 2020).

Physical activity also has many connections with increased risk for cancer. By not exercising, one can increase levels of hormones, some of which can trigger growth, and can be associated with cancer progression (Centers for Disease Control and Prevention, 2020). Lack of exercise can lead to obesity and its associated health effects (Centers for Disease Control and Prevention, 2020). Lastly, inactivity can lead to an increase in the amount of time food remains in the digestive system; this extra time within the system allows for more exposure to carcinogens within the food one consumes (Centers for Disease Control and Prevention, 2020). The effects of inactivity-induced increased digestion time on carcinogen absorption and cancer development is worsened by a poor diet and the carcinogenic properties of certain foods (Centers for Disease Control and Prevention, 2020). Poor diet is the next cause for cancer (World Cancer Research Fund, n.d.). One who eats “fast foods” such as chips or processed foods or foods that are high in sugar content is more at risk for the development of 12 types of cancer (World Cancer Research Fund, n.d.). However, a diet that is full of fiber can help protect against colon cancer by quickly moving food out of the bowel (World Cancer Research Fund, n.d.). Diets that have a high content of vegetables and fruits can provide nutrients that help one’s body combat cell damage from the carcinogens that lead to cancer (World Cancer Research Fund, n.d.). Overall, in

knowing these signs, symptoms and causes, this can help people to make small lifestyle improvements and seek help soon if they feel something is wrong and, in the end, could help save a life.

There are, however, specific cancers that have higher rates within men rather than women. The top three types of cancer within men are lung cancer, prostate cancer, and colorectal cancer (National Foundation for Cancer Research, 2019). Lung cancer kills approximately 76,000 males each year (National Foundations for Cancer Research, 2019). As discussed earlier, cigarette smoking is one of the top leading causes to developing cancer. In the terms of lung cancer, it is the leading cause. According to The US Centers for Disease Control and Prevention (2019), studies have shown that men are more likely to smoke cigarettes than women therefore lung cancer is more prevalent in men. The top method of prevention recommended for those who are reducing their risk of lung cancer or who have lung cancer and are trying to prevent further damage is the cessation of smoking (Dela Cruz, 2011). Prostate cancer is the next type of cancer that is most prevalent in men. A prostate is a male specific gland that is located inside the groin between the base of the penis and the rectum (Prostate Cancer Foundation, n.d.). The warning signs of prostate cancer can be frequent urination, weak or interrupted urine flow, or blood in the urine (National Foundation for Cancer Research, 2019). Currently, it is recommended that men get prostate screenings once a year, especially in men who are above forty years of age (National Foundation for Cancer Research, 2019). The third leading cancer within men is Colorectal cancer (2019). Colorectal cancer usually occurs with the formation of polyps, or abnormal balls of tissue, that form within the colon or rectal area (National Foundation for Cancer Research, 2019). The most common type of prevention for colorectal cancer is a screening measure called a

colonoscopy. The recommended screening time period is every five to ten years (National Foundation for Cancer Research, 2019).

Just like in men, there are certain types of cancers that are more prevalent within women. The top three cancers that affect women currently are breast cancer, colorectal cancer, and endometrial cancer (American Cancer Society, 2019). Breast cancer is the number one cancer within women. It can occur at any age and at any point within a woman's life, but the older one gets the more the risk grows (American Cancer Society, 2019). There are some early warning signs that someone could find themselves through the simplest form of prevention which is a self-breast exam. These signs include breast skin color changes such as redness, increase in size or shape of breasts, nipple discharge, general pain, or lumps or inflamed nodes felt under the skin (Cancer Treatment Centers of America, n.d.). As stated earlier, the most basic prevention of breast cancer is self-examination. Women should do this the same time every month, 2-3 days after their period. Along with these self-examinations, women who are at an average risk, 45 years and older, should get mammograms yearly to screen for breast cancer (American Cancer Society, 2019). Those who are at increased risk due to genetics could also be getting an MRI along with a mammogram for further screening (American Cancer Society, 2019). Colorectal cancer, like in men, is also a top cancer that is affecting a vast number of women. Again, colorectal cancer can come from the formation of polyps that form on the lining of one's colon. Colorectal cancer is spotted in the very same way in men and women, generally with the screening technique of a colonoscopy (American Cancer Society, 2019). One area that is a concern in colorectal cancer in women is the stigma that surrounds this type of cancer. According to Friedemann-Sanchez (2007), women feel that colorectal cancer is more of a "man's disease" and therefore this can lead to a delay in recognition and reporting of symptoms or

delayed screenings. Women's fears about colonoscopies were more centered around fear of the preparation for the screening method (Friedemann-Sanchez, 2007). Both groups, however, stated that there was more of a need for strategies to overcome fears of the preventative procedures (Friedemann-Sanchez, 2007). Lastly, the third leading type of cancer in women is endometrial cancer. Endometrial cancer is cancer of the endometrium or the lining of a woman's uterus (American Cancer Society, 2019). Hormones that are present in birth control or certain types of treatments for breast cancer can actually increase one's risk for endometrial cancer (American Cancer Society, 2019). Little is known about endometrial cancer and there are currently no screenings, but some common symptoms to watch for are vaginal bleeding after menopause, bleeding between periods, and pelvic pain (Mayo Clinic, 2019).

Often times, because cancer is a physical disease, people forget that there is a whole other aspect to cancer and cancer treatment. Cancer is a hard disease on the body physically and mentally. As stated by Mor et al. (1994), one of the biggest challenges to a cancer patient is being able to maintain a positive mindset when in the "face of death." Cancer patients and their families experience a wide range of emotions such as denial, destress, anxiety, worry, anger, and depression (Mor et al., 1994). It is estimated that about 20-25% of cancer patients can suffer often unrecognized and untreated depression (Bottomley, 1998). It is important that doctors have begun to recognize this risk for cancer patients, their families and their care takers. According to Pirl (2004), antidepressants, alternative therapies such as acupuncture, and individual and group therapy are the treatments commonly accessed and developed. When dealing with a very time-consuming disease, one must remember all aspects to heath and life.

Overall, cancer continues to be one of the most devastating diseases in today's time. It is a very extensive disease and there is still a lot of progress to be made in terms of determining all

the causes and ultimately finding a cure. Although death rates are still high, according to Simon (2019), as of 2016 the rate of cancer has hit a decline of 27%. Decline can be attributed to the improvements in cancer screening and treatments (Mayo Clinic, 2019). With the continued research and strength of many people, the hope is to continue this decline and one day cure cancer and save many loved ones.

Unintentional Injuries

The third leading cause of death within the US is death by unintentional injuries. Unintentional injuries are classified as injuries that happen without there being any intention of harming oneself or anyone else (America's Health Rankings, n.d.). Even though unintentional injuries are the third leading cause within the US, they are also the leading cause of death in people ages 1 to 44 (America's Health Rankings, n.d.). Unintentional injuries include accidents such as fires/burns, motor vehicle accidents, falls, and poisonings (Runyan et al., 2004). However, the top 3 causes of unintentional injuries, that will be discussed, are motor vehicle accidents, poisonings, and falls.

Motor vehicle accidents are at the top of the list in terms of unintentional injuries/ deaths, and there are a few specific subtypes that occur more frequently and cause the motor-vehicle related deaths to stay so high. These include alcohol-related incidents, or driving under the influence, and improper restraint factors, especially within children (Stoto et al., 1990). In 2018, there were approximately 10,511 deaths from driving under the influence crashes (National Highway Traffic Safety Administration, 2019). Alcohol can affect one's brain in many areas. It can be used and enjoyed in an appropriate and responsible way in controlled environments, but an area that should never be mixed with alcohol is operating a car and/or any kind of motor vehicle. Alcohol can have effects on the brain that reduce the function of the brain, impair

thinking and judgement, and inhibit muscle coordination (National Highway Traffic Safety Administration, 2019). All of these things are needed to be able to operate a vehicle and to avoid accidents and fatalities. Within the last ten years, the legal limit for drinking while driving was lowered to 0.08 in attempts to reduce fatal crashes by 7 percent (Community Preventive Services Task Force, 2015). Mass media campaigns have also been put into effect that target driving while under the influence. *Figure 1* shows an example of an advertisement campaign from the Ministry of Transport Malaysia.

Figure 1. Drinking and driving advertisement.
Ministry of Transport Malaysia

According to Elder et al. (2004), there is strong evidence that these mass media campaigns are effective at reducing alcohol related crashes as reflected by a 13% median decrease in crashes (Elder et al., 2004). Within just the past ten years, drunk driving has become a major concern and continues to be battled in hopes to continue reducing the numbers of

fatalities. Along with drunk driving, the next problem within motor vehicles accidents is the improper use of restraints, such as seatbelts or car seats for children. Whether this involves people just not wearing their seatbelt because they don't want to or parents not knowing how to properly install their children's car seats, it can have some huge consequences. According to Stoto et al. (1990), failure to use seat restraints may be the single most important preventable risk factor for motor vehicle trauma. Laws that require all drivers and passengers in the car to use their seatbelt have been put in place, as well as laws that allow police officers to stop and ticket solely for not wearing one's seat belt (Community Preventive Services Task Force, 2015). . These measures have resulted the number of motor vehicle-related injuries to decrease by about 8 percent (Community Preventive Services Task Force, 2015). Some laws also make it mandatory that the parents of new children have the appropriate car seat as well as proper instillation demonstrated before the mom and baby can leave for home (Stoto et al., 1990). This has an impact on not only the reduction of fatality but also the teaching of proper instillation. These things seem simple, but in the big scheme of a crash, they can make a world of difference.

The next major category within the realm of unintentional injuries is unintentional poisonings. These are incidences ranging from in-home child poisonings to accidental overdoses. In the recent years, the opioid epidemic has swept across the United States. This has led to the increase of accidental overdoses, as well as the rise in numbers of unintentional injuries. In 2017, an average of 130 Americans died daily from opioid overdose (America's Health Rankings, 2019). Opioids are a class of drugs that work in the brain to help relieve pain in many different areas (Johns Hopkins Medicine, n.d.). If used properly, these drugs can be very beneficial to those in pain (John Hopkins Medicine, n.d.). For individuals who are on them for an extended amount of time, one can become tolerant and require a bigger dose that can lead to dependence

and addiction (John Hopkins Medicine, n.d.). This compounding effect can eventually lead to overdose that has reached exponential numbers today. However, with this huge increase of overdose, there have been many implementations to attempt to prevent this from continuing to happen. The US Surgeons General lead this by releasing an online pledge that multiple prescribers can take in order to figure out their willingness to order these opioids more carefully and sparingly (Weiner et al., 2017). There have also been several laws and drug monitoring systems put in place in attempt to prevent the next generation from becoming addicted as well (Weiner et al., 2017). Aside from overdose, other poisoning includes those within the home, mostly within children. This can include anything from kids getting into cleaning products, other medications, or lead poisoning from painted walls. Poison control has invested in centers to attempt to reduce emergency visits with a toll-free number and is able to provide information about products and drugs instantly over the phone (Stoto et al., 1990). The continued use of child proof caps on cleaning products, laundry pods and detergents, and medications as well as being stored out of reach continues to be a primary method of prevention of household poisoning (Stoto et al, 1990). Although these instances are accidents, there are still precautions one can do to offset the chances.

Falls are another big category within unintentional injuries. Children and elderly individuals are most at risk for this type of injury (Stoto et al., 1990). There are several things that can cause young children to fall. They are just beginning to learn how to walk which means their balance and coordination is not yet fully developed which can lead to falls. In the elderly, falls can happen for a number of reasons: poor eyesight, poor hearing, poor balanced due to a weakened physical state, illnesses, poor lighting, or throw rugs, and some side effects of medicines (American Family Physician, 2000). Even though there are multiple reasons as to why

these falls can happen, there are still several things someone can do to prevent these falls. Some preventions include nonslip footwear, having a well-lit home with proper lighting, nightlights for when one would need to get out of bed at night, removing throw rugs, handrails on the sides of staircases, and having regular eyesight appointments with one's eye doctor (American Family Physician, 2000). It is also found that for elderly patients, implementing some form of strength training or balance retaining program or activity is extremely beneficial (Karlsson et al., 2013). For example, taking regular Tai Chi classes can improve upon an aging adults balance and coordination reducing their overall risk of falls (Karlsson et al., 2013). In knowing these things and having the information, one will become more aware of their surroundings and can decrease the risk of unintentional falls.

There is, however, one more type of unintentional death that is most prominent among infants. This is Sudden Infant Death Syndrome, also known as SIDS. Sudden Infant Death Syndrome is responsible for over half (66%) of injury-related infant deaths (Schnitzer, 2006). Sudden Infant Death Syndrome is the sudden death of a baby that remains unexplained even after it has been investigated (Degnan, 2013). There are three simultaneous factors that have formed a pattern that suggest what might be causing SIDS. For one, an infant must have an underlying vulnerability that puts them at risk for SIDS (Degnan, 2013). Secondly, a stressor of some sort that is coming from an outside source (Degnan, 2013). Thirdly, the stressor must occur at a critical point of development such as the first 12 months of life (Degnan, 2013). Currently, the biggest outside stressor that is associated with SIDS is the lack of oxygen that is associated with a baby sleeping prone during the night. About 80% of SIDS cases occur when the infant is sleeping at night (Degnan, 2013). Because babies are at that critical point of development, as mentioned earlier, they have yet to develop cognitively and physically to handle sleeping on their

front. There is more of a risk of them rebreathing the exhaled air leading to a lack of oxygen and, therefore, death (Mayo Clinic, 2018). This is because the part of their brains that control breathing and then alert them that they are not getting enough oxygen have not fully developed (Mayo Clinic, 2018). Physically, some babies have yet to develop the strength and muscle to lift and rotate their head from a face down position which would not allow them to get the appropriate amount of air (Degnan, 2013). In 2011, The American Academy of Pediatrics, or AAP, created a policy statement which detailed safe infant sleeping environments which was done in an effort to combat the rising rate of SIDS. The Academy of Pediatrics recommend that all infants less than one year be placed on their back to sleep. Once the infant is able to roll themselves from front to back or back to front then they are able to be left in whatever position they find most comfortable. Aside from sleeping position, there are other sleep environment factors that lead to an increased risk of SIDS. Sleeping on a soft surface face down can continue to block the infant's airway, sharing a bed with a parent due runs the risk of a parent rolling over onto their baby, and overheating is possible (Mayo Clinic, 2018). Although SIDS isn't one hundred percent predictable or preventable, there are some steps that parents can take in order to try and lower the risks. As discussed earlier, parents can place their babies on their back to sleep so that they can receive a continued amount of oxygen, keeping the crib as bare as possible free of blankets, pillows, plush toys, and crib bumpers (Mayo Clinic, 2018). Offering a pacifier is also another prevention that could potentially lower the risk of SIDS as long as there isn't a strap or string attached to it (Mayo Clinic 2018). Sudden Infant Death Syndrome can be a very scary and frightening thing, but as long as the caretaker is taking the proper precautions and staying education then they are doing what is best and most protective of the child.

Unintentional injury is very unpredictable and unavoidable. But there are things that can be done to try and suppress some of these tragic accidents. Even with these prevention efforts, actions, and plans that are being implemented, their success is reliant on people taking this just as seriously as a disease. The population has to have the motivation to fix these accidents like they have the motivation to cure cancer. Even though it is unintentional, these injuries are still causing thousands of deaths daily and therefore put everyone at just as much risk.

Chronic Lower Respiratory Disease

Transitioning from unintentional injuries, which was unpredictable and somewhat uncontrollable, the fourth top cause of death within the United States is chronic lower respiratory diseases. Mortality rates for the leading two causes of death, heart disease and cancer, are at a steady decline and have been for a few years (West Virginia Department of Health and Human Resources, 2006). However, mortality rates for chronic lower respiratory disease continues to rise (West Virginia Department of Health and Human Resources, 2006). Chronic lower respiratory disease used to be classified as chronic obstructive pulmonary disease, or COPD (West Virginia Department of Health and Human Resources, 2006). Chronic respiratory disease is a disease within the airway and other structures of the lungs (World Health Organization, n.d.). Chronic lower respiratory disease is a broad blanket of diseases. This label is referring to three different diseases which are: chronic bronchitis, emphysema, and asthma (West Virginia Department of Health and Human Resources, 2006). These are all classified and characterized by a person having shortness of breath due to airway obstruction (West Virginia Department of Health and Human Resources, 2006). Each of these, along with their causes, symptoms, and current preventions, will be explored.

The first disease under the classification of chronic lower respiratory disease, as mentioned above, is chronic bronchitis. Within 2017, the number of adults within the US that were diagnosed with chronic bronchitis was about 9.0 million (Centers for Disease Control and Prevention, 2017). Bronchitis is classified as the inflammation of the breathing tubes, also known as bronchi (Johns Hopkins Medicine, n.d.). These bronchi are especially important because this is how air gets in and out of the lungs. This inflammation can be harmful because it can cause increased mucus production within the lungs, thus making it harder to breathe (Johns Hopkins Medicine, n.d.). To be classified as having chronic bronchitis, one must have a cough and mucus production most days for at least 3 months of the year, for 2 years in a row (Johns Hopkins Medicine, n.d.). The most common cause of chronic bronchitis is cigarette smoking (Johns Hopkins Medicine, n.d.). Smoking causes chronic bronchitis by damaging the healing process within the tissues of the bronchi that are working to try and prevent damage from the chronic inflammation (Centers for Disease Control and Prevention, 2010). Air pollution from work environments can have the same effect of cigarette smoke (Johns Hopkins Medicine, n.d.). A productive cough and shortness of breath are the first signs of chronic bronchitis (Hamann, 2007). The mucus that is produced by the cough can be clear, white, yellow, or green (Mayo Clinic, 2017). Other symptoms that appear when the disease progresses are fatigue, slight fever and chills, and chest discomfort (Mayo Clinic, 2017). The best and most-recommended prevention for chronic bronchitis is to not partake in the use of tobacco products (Hamann, 2007). Other modes of prevention may include working a job with low environmental exposure, washing your hands to prevent infection, and vaccination to decrease the risk of influenza that can cause acute bronchitis (Mayo Clinic, 2017). Providing information about prevention is

extremely important in limiting the development of chronic bronchitis considering it primarily stems from smoking and is, therefore, largely preventable.

The next disease that is included in the chronic lower respiratory category is Emphysema. Emphysema is a lung condition where the air sacs within the lungs that help inhale air and exhale carbon dioxide are damaged (Mayo Clinic, 2017). Eventually, after being exposed to hazards, the air sacs can break open (Mayo Clinic, 2017). This creates large air spaces instead of the intended smaller ones which decreases the surface area of the lungs and, therefore, does not allow for as much air to be taken in by the lungs, in which, causes a decrease of oxygen that reaches the body's bloodstream (Mayo Clinic, 2017). Emphysema is mostly caused by smoking or environmental factors of the workplace (West Virginia Department of Health and Human Resources, 2006). Due to this workplace hazard, this has greatly increased the risk and number of people who have developed emphysema in Kentucky. Since coal mining is a major industry within Kentucky, it was found that cumulative exposure to the dust produced by coal has put workers at a significant risk of developing emphysema (Santo Tomas, 2011). However, there is also a hereditary gene known as alpha 1- antitrypsin (West Virginia Department of Health and Human Resources, 2006). Some have a natural deficiency, but this type of gene can also be deactivated by cigarette smoke which can lead to environmentally induced deficiency (West Virginia Department of Health and Human Resources, 2006). Once again, shortness of breath is the most common symptom and the first to appear (Kinsman, 1983). Other symptoms include fatigue, sleep disturbance, congestion, irritability, anxiety, helplessness, poor memory, and feelings of alienation from others (Kinsman, 1983). Some physical, noticeable and more long-terms signs of emphysema are chronic cough, anorexia, weight loss, barrel (rounded) chest, hypoxemia (to little oxygen in the blood), and heart failure (Hamann, 2007). Some of the basic

preventions of emphysema include the prevention of smoking or the immediate cessation of smoking and wearing protective masks if one is involved in a hazardous work force, such as coal mining (Mayo Clinic, 2017). However, according to Noehren et al. (1964), the physicians who are treating productive cough or symptoms that can lead to emphysema should then, regardless of its etiology or cause, also begin the prevention for emphysema because of how common emphysema is. This can help to reduce numbers in stopping the progression even if it is not headed toward the stages of emphysema.

The third disease included in chronic lower respiratory category is asthma. Asthma, like bronchitis, is within the bronchial tubes that allow air to come in and out of the lungs. But, unlike bronchitis, where one's tubes were constantly inflamed after years of taking in harmful substances or chemicals, asthma occurs when something triggers symptoms causing the airway to tighten (American Academy of Allergy Asthma and Immunology, 2020). There are 4 types of asthma: exercise- induced asthma, allergic asthma, occupational asthma, and childhood asthma (American Academy of Allergy Asthma and Immunology, 2020). Exercise-induced asthma (EIA) is the constriction of the airway due to physical activity (College of Allergy, Asthma, and Immunology, n.d.). Certain allergens from exercise such as chorine when swimming, pollution while running, or cold, dry air can trigger the symptoms of EIA (College of Allergy, Asthma, and Immunology, n.d.). These include shortness of breath, wheezing, decreased endurance, cough, and chest tightness (College of Allergy, Asthma, and Immunology, n.d.). Treatments include different types of medicines, in which case some can be taken for prevention, 15-30 minutes prior to exercise or physical activity (College of Allergy, Asthma, and Immunology, n.d.). Allergy asthma is when the constriction of the airway is triggered due to the genetic predisposition of some allergies such as pollen, pet dander, dust, or mold (College of Allergy,

Asthma, and Immunology, n.d.). Immunotherapy is a way of prevention and treatment for those who suffer from this form of asthma. It helps your body become less sensitive to the specific allergens through an allergy shot or sublingual tablets by exposing your body to a little bit of it which can help develop an immune response (College of Allergy, Asthma, and Immunology, n.d.). Occupational asthma is the constriction of the airway due to the triggers in fumes, gases, or dust that a person can encounter while on the job (American Academy of Allergy, Asthma, and Immunology, n.d.). Preventions and treatments include avoiding the asthma triggers along with drug therapies and the follow up of medical care on a regular basis (College of Allergy, Asthma, and Immunology, n.d.). Finally, childhood asthma is the constriction of the airway again do to some of the same triggers within allergy asthma, however, it is different in that it can cause bothersome daily symptoms that can get in the way of development (Mayo Clinic, 2019). Childhood asthma is the leading cause of emergency department visits, hospitalizations, and missed school days (Mayo Clinic, 2019). But, if parents and doctors can get the right treatment plan and carry it on into adulthood, they can go on to live seemingly average lives (Mayo Clinic, 2019). Asthma is a very common and widespread disease but, in some cases, it can be reversible and kept under control if an individual is very aware of their triggers, signs, and preventions and continues treatment.

These pulmonary diseases are becoming more and more prevalent. But, with continued research and education of the causes and symptoms, the prevalence will hopefully plateau and decrease in the near future. This is very relevant for those attending Murray State, living in Murray, or those who are residents in other parts of Kentucky. Kentucky has one of the highest rates of morbidity due to chronic lower respiratory disease in the United States (Centers for Disease Control and Prevention, 2019). Although, within the United States, chronic lower

respiratory disease is ranked third within Kentucky, it is the 1st leading cause of mortality in the state with about 3,421 deaths (Centers for Disease Control and Prevention, 2019). Overall, for areas of such high prevalence, even more prevention and education should be distributed so that those within these communities are made aware and can continue to make necessary changes to take precautions.

Stroke

Stroke is currently the 5th leading cause of death in the United States. It is commonly thought to occur within the heart, but it occurs in the brain. It is similarity thought of as a "brain attack" because the process of it is like a heart attack but rather in the brain (National Institute of Neurological Disorders and Stroke, 2020). Stroke is classified as when a blood vessel that carries oxygen and nutrients is either blocked by a clot and, therefore, cuts off blood circulation to the brain causing the brain cells to die (American Stroke Association, n.d.) Stroke is also classified when the clot that blocks the blood vessel ruptures (American Stroke Association, n.d.). There are 3 different distinctions of stroke which include ischemic stroke, hemorrhagic stroke, and transient ischemic attack (Mayo Clinic, 2020). Ischemic Stroke is when the blood vessel leading to the brain is blocked, usually by a clot (Mayo Clinic, 2020). Hemorrhagic stroke is when the clot that is blocking the blood vessel is either leaking out or fully ruptures (Mayo Clinic, 2020). Then there is Transient ischemic attack or TIA; this is when some people only have a temporary blockage of blood flow to the brain, therefore, they suffer stroke symptoms but only for a short period of time (Mayo Clinic, 2020). Transient ischemic attack is also commonly known as a "mini stroke". Stroke is, and should be, considered a true medical emergency, just like a heart attack would. The earlier detection and reduction of stroke symptoms can also reduce brain damage and complications from the stroke (Mayo Clinic, 2020).

There are several risk factors for stroke. There are some non-modifiable risk factors such as age, race, gender, family history, and hormones. Although stroke isn't limited to any specific age group, studies have shown that stroke doubles for people in the age range of 55-85 years old (National Institute of Neurological Disorders and Stroke, 2020). However, stroke occurs most often in older people. The highest risk of stroke in childhood is within the last few months of fetal life and the first few weeks after birth so identification, warning signs and education should be taught to mothers prior to this period (National Institute of Neurological Disorders and Stroke, 2020). Men tend to be at a higher risk of stroke than women (Mayo Clinic, 2020). But, women are more likely to die from stroke. This being because woman live longer than men, therefore, if they are going to have a stroke, they will have it earlier in life and have a better chance of survival then men (National Institute of Neurological Disorders and Stroke, 2020). In terms of race, African Americans have a higher risk of stroke and a higher risk of dying from stroke (National Institute of Neurological Disorders and Stroke, 2020). Stroke is seen to be genetic and, therefore, some family members can have a genetic predisposition to develops the modifiable risk factors of stroke, such as high blood pressure or diabetes (National Institute of Neurological Disorders and Stroke, 2020). Within women, some hormone therapies or prevention of pregnancy in the form of birth control pills can increase the risk of stroke (Yew et al., 2015). Along with the non-modifiable risk factors, there are several modifiable risk factors. These factors include hypertension, cigarette smoking, obesity, diabetes, cholesterol imbalance, physical inactivity and an overall unhealthy lifestyle. Hypertension, or high blood pressure, is the most potent of risk factors for stroke (National institute of Neurological Disorders and Stroke, 2020). This is because it can increase the risk of inflammation and clot formation, therefore cutting off the blood flow to the brain and other vital parts of one's body. Smoking has an impact

on every part of someone's body. Cigarette smoke has shown a direct link to the buildup of fatty substances, specifically within the arteries supplying blood to the brain, therefore blocking the blood and causing stroke (National Institute of Neurological Disorders and Stroke, 2020). Cholesterol imbalances are also a leading cause of clot formation due to the excess cholesterol causing atherosclerosis and leading to both heart attack and stroke (National Institute of Neurological Disorders and Stroke, 2020). Overall, an unhealthy lifestyle which includes less than the recommended amount of exercise, consumption of sugary beverages, and a low consumption of fish, fruits, and vegetables all combine to increase ones' risk of stroke (Yew et al., 2015). According to American Stroke Association (2020), eighty percent of strokes are preventable. Again, all of these modifiable risk factors can be changed in order to lower one's risk and is one of the best and least expensive things a person can do for themselves.

The three subcategories of stroke have specific signs and symptoms that can help determine what kind of stroke someone is having. But, overall, there are some general blanket signs and symptoms that all individuals could be aware of to help spot someone suffering from a stroke. These include confusion, slurring of words, difficulty understanding speech, paralysis or numbness of the face, arm, or leg, problems with blurred or blackened vision, headache, or trouble walking (Mayo Clinic, 2020). In terms of Ischemic stroke (which is the cause of about eighty percent of strokes), some of the most heavily reported signs and symptoms were arm and leg weakness, self-reported speech disturbance, headache, arm and leg paresis, and shortness of breath (Yew et al., 2015). Within hemorrhagic strokes, headaches and convulsions upon hospital admission are the most reported sign and symptom (Rathore et all., 2002). These signs and symptoms, however, are not specific to stroke, and can therefore get confused with other diagnosis before being labeled a stroke. Studies have shown that weakness and fatigue, altered

mental status, altered gait and dizziness, and hypertensive urgency are the common symptoms that are labeled as diagnosis other than stroke in people who were later confirmed to have suffered a stroke (Yew et al., 2015). In order to determine if someone is suffering from a stroke quickly and efficiently, F.A.S.T was implemented. This is an acronym that is easily remembered for any and every one to check for stroke even within the common home. The “F” stands for face. When accessing this, one should ask the person they believe is having a stroke to smile and check for drooping (Centers for Disease Control and Prevention, 2020). The “A” stands for arms. When assessing this one should ask the person to raise both arms above their head and see if one drifts downward (Centers for Disease Control and Prevention, 2020). The “S” stands for speech. One would need to ask the person to repeat a simple phrase or words and assess whether it is slurred, sounds strange, or if they can communicate at all (Centers for Disease Control and Prevention, 2020). Lastly, the “T” stands for time. If one sees any of these signs, they need to contact 9-1-1 immediately (Centers for Disease Control and Prevention, 2020). These should be reported regardless of if the symptoms disappear for a short amount of time or all together because one could have suffered a transient ischemic attack or a “mini stroke”. In memorizing this small acronym, one can save someone’s life, as well as preserve their quality of life by reducing the effects of a stroke by getting them seen and treated as fast as possible.

Prevention of stroke can be within two categories: lifestyle/healthy habits modifications and medical intervention, such as specific medications that target the reduction of stroke. In terms of lifestyle changes, that is what is going to have the most impact on reducing the risk of stroke. These changes include the reduction or cessation of smoking, exercising daily, consuming a diet that is high in protein, fiber, fruits and vegetables, moderate to no consumption of alcohol, and maintaining a healthy weight (Chiuve et al., 2008). If someone already has some

of the risk factors, such as hypertension or diabetes, the maintenance and upkeep of those diseases are also crucial to reducing and preventing stroke (Pearson et all., 2002). In terms of medical intervention, such as medication, some people who are at high risk or have already suffered a stroke will be placed on anti-platelet drugs or anticoagulants. Anti-platelet drugs are drugs that will make platelets (the cells that are in blood that form clots) less sticky and less likely to clot (Mayo Clinic, 2020). Anticoagulants are drugs that are used to reduce blood clotting by thinning one's blood (Mayo Clinic, 2020). Sometimes a group of drugs known as statins are also used. These statins reduce lipids which are helpful in the reduction of cardiovascular disease and also can be useful in the reduction of stroke. It was shown that this group of medications reduced strokes by 21% and fatal strokes by 9% (Amarenco et al., 2004). Overall, whether it is lifestyle or medical prevention, both are shown to be effective and could be used in combination for an even lower risk.

There are several impacts of stroke on not only those who suffer from stroke, but those who are caretakers of those who suffer strokes. Not only are there physical effect, but also mental health effects and economic effects. The area of the brain in which the stroke occurs can determine the physical effects that a person is left with. The brain is divided into 3 main areas: Cerebrum (right and left sides of hemispheres), Cerebellum (top and from of the brain), and the base of the brain which is the brainstem (Johns Hopkins Medicine, 2020). Some of the physical impacts from stroke occurring in the cerebrum are movement and sensation problems, speech and language problems in communication, eating changes, vision changes, reasoning, judgment, and memory ability, and self-care ability (Johns Hopkins Medicine, 2020). A stroke occurring in the cerebellum can leave effects such as the inability to walk and problems with coordination and balance, dizziness, headache, and nausea and vomiting (Johns Hopkins Medicine, 2020). Effects

from stroke occurring in the brain stem are breathing and heart function problems, body temperature control issues, weakness and paralysis, chewing, swallowing and speaking issues, and vision changes (Johns Hopkins Medicine, 2020). All of these physical detriments can be physically crippling but also can have a huge impact on mental health. It can cause a decreased sense of self-worth or depression because one can go from being able to take care of themselves to possibly having to rely on others around them. It can also influence the one who is taking care of the stroke survivor because of watching them struggle and/or deteriorate, as well as the pressure of feeling depended on. The economic impacts of a stroke should also be considered; medical care is not cheap, especially if it is extended in terms of stroke after-care. Also, if one suffers any form of deficits that affect one's ability for self-care, they will not be able to return to work as they once did, again reducing their income and ability to afford care. Therefore, when treating stroke patients, the holistic or all-inclusive approach should be considered for the patient and their caretakers, not just the physical impact of the patient.

Stroke has had a major impact on the United States and several people and their families. Continuing to spread information, reduction of risk factors and prevention/recognition tools will lead to the faster identification and hopefully the reduction of the effects and increase in quality of life after suffering from a stroke and the prevention of stroke from occurring in the first place.

Alzheimer's Disease

The sixth leading cause of death within the US is Alzheimer's disease. A lot of times when someone mentions Alzheimer's disease, people automatically assume that it is dementia. Dementia and Alzheimer's get mistaken often but, in fact, they are two separate processes that are just interconnected. Dementia is a general term for a decline in mental ability that is severe enough to interfere with someone's daily life (Alzheimer's Association, 2020). Alzheimer's

disease is a progressive disorder that can cause brain cells to degenerate, or waste away, and eventually die (Mayo Clinic, 2018). Alzheimer's is the leading cause of dementia which accounts for 60 percent to 80 percent of dementia cases (Alzheimer's Association, 2020). Another misconception that a lot of people have is that dementia is a very normal part of aging. However, dementia is not a normal part of aging (Alzheimer's Association, 2020). This is a key point simply because dementia is one of the biggest signs of the disease so by acknowledging and understanding that it isn't normal, then one can seek help and the source quicker and receive information and potential treatments quicker. There are a couple "types" of Alzheimer's. There is early-onset and late-onset. Early onset is very rare and begins to appear between someone's 30s to mid-60s (National Institute of Aging, 2019). Late onset is the most common type of Alzheimer's and what the majority of cases consist of; symptoms usually begin to appear in a person's mid 60s or later (National Institute of Aging, 2019). Late onset is thought to involve a specific gene mutation within someone's genes whereas early onset is thought to be caused by gene changes that are passed down from a parent to their children (National Institute of Aging, 2019). The true cause of Alzheimer's isn't known, but there are several studies and research being done to try and get down to the causal mechanisms, as well as, find other factors and contributors to this disease.

Currently, the specific cause of Alzheimer's isn't known. Even with the cause not being known, researchers and scientists still believe that the disease is a combination of aging, genetic factors, and health, environmental, and lifestyle factors. Some believe Alzheimer's disease to be an accelerated form of natural aging (Armstrong, 2013). This conclusion is drawn because many of the pathological changes are similar in natural aging and Alzheimer's disease (Armstrong, 2013). The only major difference between the two is the severity of Alzheimer's disease

(Armstrong, 2013). But just because they have similar processes does not mean that Alzheimer's is inevitable or normal; age is simply the most important risk factor (National Institute on Aging, n.d.). Other changes in the brain related to aging that can also be related to Alzheimer's disease are atrophy, or shrinking, of particular parts of the brain, inflammation within the brain, vascular damage of major vessels, and breakdown of energy production within cells (National Institute of Aging, n.d.). Genetics and specific gene mutations have shown to potentially be a risk factor or connection to the development of Alzheimer's disease. As discussed previously, there are two types of Alzheimer's—early onset and late onset. Early onset again, is in connection with a family history of the disease. It is thought that early-onset, familial or inherited Alzheimer's can be connected to mutations that increase production of beta-amyloid or the mutation of presenile 1 and 2 (Munoz & Feldman, 2000). But this only accounts for about 4 to 8% of cases; therefore, about 92 to 96 percent of cases fall under the late-onset category (affected after the age of 65) (Munoz & Feldman, 2000). It is thought that the gene for apolipoprotein E (APOE) is a major risk factor for the development of Alzheimer's because his is a protein that is involved in synaptic repair in response to tissue injury (Munoz & Feldman, 2000). In terms of environmental factors and other connections, there are several that are thought to have some relation to the development of Alzheimer's. The head-heart connection is one that is thought to have a strong link to the development of the disease. The head-heart connection refers to the connection between heart health and brain health. This is because the brain is supplied by the body's network of blood vessels and the heart is responsible for getting blood to the brain (Alzheimer's Association, 2020). Therefore, people who suffer from conditions that damage the heart and vessels, such as heart disease, diabetes, stroke, and high blood pressure would be at an increased risk for brain-related diseases like Alzheimer's (Alzheimer's Association, 2020). Diet and

malnutrition are other environmental factor that have shown a link. This link is driven by the lack of magnesium and calcium within Alzheimer's patients (Armstrong, 2013). This lack of nutrients has been linked to neurofibrillary tangles within the brain (Armstrong, 2013). These tangles are a marker of Alzheimer's within themselves because they disrupt the transport of these nutrients and are toxic to the cells in the brain (Mayo Clinic, 2018). Other factors can include those related to lifestyle such as lack of exercise, obesity, smoking, lack of sleep, and history of head trauma (Mayo Clinic, 2018). The identification of these factors is getting researchers closer to identifying a specific cause while also allowing people to lookout or make necessary changes to increase one's odds of not developing Alzheimer's.

When talking about signs and symptoms within Alzheimer's disease, it can get tricky when recognizing and defining these within actual people. This is because at the start of the development of the disease, most of the symptoms or signs can just look like forgetfulness and might not even be noticeable. However, memory loss isn't a normal part of aging as stated before, therefore, it is considered one of the key symptoms of Alzheimer's disease (Holger, 2013). This memory loss can start off in smaller forms such as forgetting recent events or having trouble remembering recent conversations, but can then move into more severe forms such as repeating statements and previously asked questions over and over, misplacing possessions and putting them in illogical locations, getting lost even within familiar places, forgetting their name and the names of their family members, and having trouble finding the right words for objects or to express how they feel (Mayo Clinic, 2018). This memory loss is thought to come from the progression of the disease in the areas of the brain that are associated with memory and learning (Holger, 2013). This occurs when the neurons in the brain becomes demyelinated and start to change the entorhinal cortex and the hippocampus (Holger, 2013). Losing or having an impaired

sense of smell is seen to be common among degenerative disorders such as Alzheimer's and Parkinson's disease (Holger, 2013). This is from the plaque buildup within the entorhinal cortex in the brain which is the region that is also responsible for the sense of smell (Holger, 2013). People who have progressive symptoms of Alzheimer's disease tend to show difficulty in everyday tasks or tasks that are necessary for one to sustain an independent life such as little interest in self-care, work, and household tasks like cleaning and/or paying bills on time (Reichman et. al., 1996). They will be seen to struggle with making judgement decisions such as what clothes are appropriate to wear for the weather that day and may have difficulty in responding to a problem like food burning on the stove (Mayo Clinic, 2018). Clinicians and caretakers also have observed changes in personality and behavior. Some of these changes include depression, social withdrawal, mood swings, irritability, lack of sleep, and delusions (Mayo clinic, 2018). Some of the most common behavioral changes were found to be delusions and nonspecific agitation (Reisberg et al., 1987). A delusion is a false belief, based on an incorrect inference about an external reality (Reisberg et al., 1987). These delusions are again due to the physical brain changes that are occurring within the diagnosed patients' brain (Mayo Clinic, 2018). They can have an impact on not only the person experiencing the delusion but can put a strain on the caregivers as well because of the severity and true belief that is held (Reisberg et al, 1987). However, there can be some skills that are present and intact longer than those of memory, learning, or decision making. This can be because these skills are obtained in areas of the brain that aren't affected until very late within the disease process (Mayo Clinic, 2018). Some of these skills are reading books, telling stories or reminiscing, singing, dancing, or doing crafts (Mayo Clinic, 2018). These can be very important for maintaining the functionality or

quality of life within Alzheimer's patients and observing these things can point some to how developed the disease.

Alzheimer's is not a preventable disease, therefore, there is no set preventions that will ensure that one will not develop Alzheimer's. However, there are modifiable lifestyle factors that can improve someone's health which is a good defense against many diseases. These modifiable factors can include avoiding or properly maintaining chronic diseases chronic diseases, especially those related to the heart like heart disease or high blood pressure, should be managed and kept within a healthy limit, a healthy diet of fruits and vegetables that is low in saturated fat and high in folic acid, participation in regular physical activity, and the cessation of smoking (Daviglus et al., 2010). When talking about diet specifically, there are two that have shown to be beneficial— the DASH diet and the Mediterranean diet (Alzheimer's Association, 2020). The DASH diet emphasizes vegetables, fruits, and fat-free or low-fat dairy products, whereas the Mediterranean diet focuses on limiting red meat and increasing whole grains, fruits, and vegetables (Alzheimer's Association, 2020). Other modifiable factors involve more social aspects of one's life. Maintaining strong social connections that allow one's brain to stay mentally active and get proper stimulation to remain sharp is thought to strengthen the connections between nerve cells within the brain (Alzheimer's Association, 2020). As discussed above, head trauma and multiple occurrences of head trauma are discussed as a connection to the cause of Alzheimer's, so precautionary measures for preventing head trauma should be practiced. This can be done in way like wearing a seat belt, using a helmet for appropriate times like sports or when riding a bike and "fall-proofing" your home (Alzheimer's Association, 2020). Medications are also in use for those who have already developed Alzheimer's with the goal of prolonging/preventing the worsening of the disease and maintaining their cognitive health as

long as possible. Some of these medication therapies include cholinesterase inhibitors, memantine, and N-methyl-D-asparte (Konstantina et al., 2012). There are, however, several drugs that are in trial and research continues to find what drug therapies could potentially continue to help patients. Alzheimer's continues to be one of the most devastating diseases within the elderly communities. It can have some damaging effects not only physically but emotionally for the patient and their families. Although there is a lot that is still not known, researchers are working hard and across all fields to get some answers and more control on this disease.

Diabetes

The seventh leading cause of death within the United States is diabetes. As we have previously mentioned, the US does not have the healthiest habits or make the best lifestyle choices. Our diet is mostly made up of sugary and very processed foods that are more accessible than healthy options. That combined with the sedentary lifestyle that most people are conforming to has led to a large and quick increase in obesity nationwide. This increase in obesity is shown to have also influenced the rise and prevalence of diabetes (Stokes & Preston, 2017). Stokes and Preston (2017) found that the odds of having diabetes increased at a rate of 2.6% between the years of 1988 to 2014, and it was found that the ride in obesity over that set of years accounted for about 72% of that increase in diabetes. The way that obesity affects the body, in terms of diabetes, is that when someone is overweight or obese for an extended amount of time, it can cause an increase in fatty acids and cause inflammation which then leads to the resistance of insulin. Insulin is a hormone that is released to uptake the glucose (sugar) in someone's blood stream. This resistance to insulin results in glucose remaining in the blood causing high blood sugar aka Type 2 diabetes (Bierman et al., 1968). There are two types of diabetes: type 1 and

type 2. Type 1 diabetes, also known as juvenile diabetes, is the type of diabetes that is hereditary and has a rapid onset typically before the age of 35 (Hamann, 2007). Within Type 1 diabetes, the insulin producing beta cells within the pancreas are destroyed, therefore genetically those who have type 1 bodies physically does not produce insulin to soak up the glucose (Atkinson, 2012). Type 2 diabetes, previously known as adult onset diabetes, because this type typically occurred after the age of 40 (Hamann, 2007). Rather than being caused by genetics, type 2 is typically formed by lifestyle factors in the process that was described above. type 2 diabetes, unlike type 1, is a gradual onset over one's life and associated more with those lifestyle factors.

Type 1 diabetes causes are shown to come straight from genes; therefore, it is hereditary (Hamann, 2007). The person has a genetic susceptibility with ineffective immune responses and defense barriers, leading to an autoimmune process that causes the beta cells that produce insulin to be destroyed causing diabetes (Ozougwu et al., 2013). However, it is thought that there are also some environmental factors that can be another cause of type 1 diabetes (Vaarala et al., 2008). These factors are relating to one's gut and include specific types or combos of intestinal microbiota, an intestinal mucosal barrier that has "holes" and allows substances to leak out, and an altered intestinal immune response (Vaarala et al., 2008). These three factors together can be shown to lead to the autoimmunity that causes the progression of beta cell destruction leading to type 1 diabetes as mentioned above (Vaarala et al., 2008). Type 2 diabetes can also contain a hereditary component in the development of the disease, but it is seen more often than not that the formation of type 2 is from factors such as obesity, sedentary lifestyle, and psychological and emotional stress (Hamann, 2007). Obesity is the leading factor in the development of type 2 diabetes (Ozougwu et al., 2013). Stress is also another key factor because it can lead to increase in body weight therefore feeding into obesity. In particular, stress on the mind such as

depression, anxiety, or sleeping problems can lead to the development of type 2 diabetes (Pouwer et al., 2010). Other factors that can contribute to the increase in visceral fat are over-eating, smoking, excess in alcohol consumption, and processes of aging (Ozougwu et al., 2013). Although the causes of each are differ, the causes and effects for both follow hand in hand.

Type 1 diabetes is most often diagnosed in children and adolescents and is a very rapid and quick onset, in the prevention of specific symptoms. These symptoms are known in a "classic trio" which include polydipsia, polyphagia, and polyuria, also known as extreme thirst, extreme hunger, and excessive need to urinate or volume of urine (Atkinson, 2012). This is usually coupled with hyperglycemia (excessive levels of sugar within the blood) (Atkinson, 2012). Other symptoms include extreme fluctuation in weight, vaginal itching, and a flu-like episode that take a little while to recover from (Hamann, 2007). One symptom that is reported, especially within adolescence, that isn't a direct symptom of the disease but a symptom of the diagnosis is depression (Hood et al., 2006). These feelings of depression have been shown to negative diabetes outcomes and poor maintenance of the disease (Hood et al., 2006). Knowing this, parents and physicians should education and keep watch so that aid can be given to help their physical and mental health. Since type 2 diabetes is a gradual onset, most of the time people can go on asymptomatic and not have a clue that they have the disease. But as it develops, type 2 signs and symptoms vary. These symptoms can include: Unexplained weight loss, frequent fatigue, irritability, repeated infections, dry mouth, burning, pain or numbness of the feet, Itching, decreased vision, and impotence or erectile dysfunction (Ramachandran, 2014).

Prevention of type 1 diabetes is not fully known or understood (Hamann, 2007). However, there have been studies that suggest that if you could protect and off put the destruction of the beta cell, then one could offset the development of type 1 diabetes. In using

Nicotinamide, which could inhibit the destruction and reduce the nitric oxide accumulation within the pancreas, is a suggested way to do this (Kawasaki et al., 2004). Although it is not a true form of prevention, screening is at least a form of detection that can catch the disease earlier and help those before reaching the telling symptoms and effects. One method that is suggested is to measure islet autoantibodies in relatives of those with type one diabetes that may help to indicate who is at risk of the development of the disease (American Diabetes Association, 2016). Blood glucose testing is also recommended for those who present with symptoms of hyperglycemia to try and diagnose the acute onset of type 1 diabetes (American Diabetes Association, 2016). Current treatments for type 1 are generally self-treated through monitoring and use of injectable insulin. Education of monitoring glucose through different devices and the injecting of insulin through self-directed shots or pumps are typically what is used alongside the recommendation of healthy diet and exercise (Hamann, 2007). This method of self-monitoring can be shown very effective in the treatment in those adults who are willing to incorporate it into their routine. Within children and adolescence (Tamborlane et al., 2008). It can be a little less effective and risky because of where they are cognitively in terms of missed doses and missed testing windows can result in diabetic coma or death (Mamann, 2007). Type 2 diabetes preventions focus on modifiable risk factors such as maintaining a healthy diet as well as regular exercise in avoidance of obesity (Mamann, 2007). In particular in terms of diet, dietary fats are an area of focus because fatty acids can influence glucose breakdown (Riserus et al., 2008). Followed by methods to reduce and manage stress (Mamann, 2007). Recommended testing and screening for type 2 diabetes is recommended to begin in those who are obese, overweight, or anyone with a BMI over 25 (American Diabetes Association, 2016). Tests that should be completed is a fasting plasma glucose, 2-h plasma glucose after a 75 g oral glucose tolerance test

and an A1C are standard (American Diabetes Association, 2016). Type 2 can be managed simply by diet restrictions only (Hamann, 2007). Followed by support groups, self-testing, education, and exercise it can be maintained but if change in diet does not support the maintenance then oral hypoglycemics are used to stimulate insulin production (Hamann, 2007). Knowing the signs and then having the education behind the disease is crucial to receiving the right treatment or stopping the progression of both types of diabetes. Uncontrolled Diabetes can have some serious and life threating implications. Diabetic coma and death are the worst-case scenario and can be prevented by stronger education, acknowledgment of symptoms, and the taking control of one's own treatment and disease.

Influenza and Pneumonia

The eighth leading cause of death within the US is due to influenza and pneumonia. These two are grouped together typically because death from pneumonia follows after one has previously been suffering from influenza (Hamann, 2007). Influenza, or the flu, is a disease of the upper respiratory tract and can have a very rapid onset and spread quickly (Hamann, 2007). Influenza often shares some of the same signs and symptoms as the common cold. However, the flu symptoms are much more severe or intense which is how one can identify the difference. These symptoms can be things such as fever, body aches, extreme tiredness, and dry cough (Van Wyk, 2016). The viruses that cause the flu change yearly, resulting in the epidemic seen annually in the US (Hamann, 2007). These strains of flu are classified into three categories which are Type A, Type B, and Type C (Hamann, 2007). Type A is what is typically seen and what causes most of the epidemics yearly (Hamann, 2007). Pneumonia is an acute infection of the lugs that is caused by almost every infectious agent. Pneumonia can be classified by disease agent (or what is causing the disease), location, and/or the type (Hamann, 2007). There is Pneumococcal

pneumonia which is the most common type of pneumonia, particularly among the elderly community and young children (Hamann, 2007). This type of pneumonia also commonly goes undetected by the individual suffering from it, making it even more deadly.

Influenza is transmitted through airborne droplets from person to person (Hamann, 2007). This can occur from inhaling the droplets directly or by picking up the germs from other heavily used objects, like doorknobs or remote controls, and then touching one's eyes, nose, or throat (Mayo Clinic, 2019). Therefore, going to busy crowded areas combined with inadequate hand hygiene can lead to one contracting influenza and potentially continuing the spread to others. Pneumonia, however, is caused by different viruses, bacteria, or fungi. Pneumococcal Pneumonia (what 80% of pneumonia cases are) is caused by a bacterium named *Streptococcus pneumoniae* (Hamann, 2007). Walking pneumonia (the other 20% of pneumonia cases) is found to be caused by the bacterium *Mycoplasmal pneumonia* (Hamann, 2007). Although the causes are pretty straight forward, it is extremely important to have good hygiene and be aware of those who are showing signs and symptoms.

As stated earlier, the signs and symptoms of the flu can be similar to those of a common cold or other respiratory disease. But in trying to determine whether or not these are flu like symptoms or not, one must pay attention to the severity and time of onset of the symptoms. It was found that feeling feverish (typically a fever of 101-104 degrees Fahrenheit), the sudden onset of chills, cough, muscle pain, and weakness are some of the cardinal symptoms of influenza (Monto et al., 2000). Other common symptoms include a nonproductive cough, sore throat, hoarseness, and inflammation or congestion of the nasal mucosa (Hamann, 2007). Pneumococcal pneumonia symptoms also have a rapid onset which could indicate why those who have pneumonia more than likely also suffered from influenza prior. Common symptoms of

this type of pneumonia are chills, fever, chest pain, difficulty or labored breathing, and a cough (Hamann, 2007). Often times those with Pneumococcal pneumonia will have a productive cough that results in the uprising of mucus from the lungs. This mucus production has a specific coloring to pneumonia which is a red or rusty color which signals that there is blood within the sputum (Hamann, 2007). However, there are other key signs in children who contract this form of pneumonia. These are vomiting or the presence of convulsions (Hamann, 2007). Walking pneumonia, however, has symptoms that are more hidden or remain dormant which is why one can have this form of pneumonia for a long span of time and not be aware. Symptoms include headache, malaise (an overall not feeling well), and cough (Hamman, 2007). They can last days to months or in some cases longer and are not as severe, therefore they are hard to recognize and diagnose.

Treatment of influenza is mostly made up of "damage control" and comfort measures. Because there is no set cure, one should take measures such as getting lots of sleep and drinking plenty of fluids to stay hydrated. Analgesics (pain meds) are also recommended to help ease some of the aches (Hamann, 2007). Antiviral drugs have also been shown to lessen the severity of the symptoms (Stiver, 2003). Drugs such as Mantadine, Zanamivir, and Oseltamivir all can modify the severity as well as the duration of the illness by at least 1.5-2.5 days (Stiver, 2003). These drugs are more affective when given at least 30-36 hours of the development of the illness and can be used in any form of patient whether they are vaccinated or unvaccinated but are recommended especially in those patients who are found to be high risk (Stiver, 2003). Antibiotics also can be used to help protect against any secondary infections that might occur alongside the flu (Hamann, 2007). Prevention for the flu is a very talked about and controversial topic in today's time. Lots of people have their opinions on whether the vaccine works or

doesn't. It is recommended for prevention of the flu for people to receive the vaccine, especially if they are over 65 years of age (Hamann, 2007). If given every year it is typically 60-70% effective (Hamann, 2007). Other recommendations such as good hand hygiene, adequate amounts of sleep, and a healthy diet can improve one's immune system and help fight off illness and disease. There are many misconceptions about the flu and the vaccine used to help weaken or prevent it. One of the most common misconceptions is that the flu vaccine can actually in turn give you the illness itself. This is untrue as the flu vaccine is made with a flu virus that has been "inactivated" or a single gene from the flu rather than the full strain to produce an immune response within the body (Centers for Disease Control and Prevention, 2019). The treatment of pneumonia is similar to that of the flu. The virus that causes Pneumococcal pneumonia has become resistant to some of the typical drugs used to treat pneumonia, such as penicillin (Hamann, 2007). Therefore, the use of antibiotics and the combination of the preventive vaccine are needed in order to take control of this virus (van der Poll et al., 2009). Just like the virus that causes Pneumococcal Pneumonia, the bacteria that causes mycoplasmal pneumonia has also become resistant to penicillin, so other drugs such as erythromycin are used and seen as effective (Hamann, 2007). There is also a vaccine that is given in terms of prevention and is recommended for those who are considered high risk such as the elderly, the debilitated, and alcoholics (Hamann, 2007). Again, proper sanitary measures should be taken as the first precaution with any type of illness.

The impact of the flu and pneumonia has been shown worldwide to cause pandemics and yearly epidemics. It can put many out of work as well as putting stress on those who are ill and those who are tasked with taking care of the ill. The mutation and growing resistance to medications can make anyone and everyone susceptible. Being aware of what can lead to these

illnesses and taking the necessary and recommended precautions will protect the individuals taking these preventative steps as well as individuals around them who may be vulnerable and susceptible.

Kidney Disease

The ninth leading cause of death within the US is chronic kidney disease. According to the Centers for Disease Control and Prevention, Kidney disease is very common among US Adults with more than one in seven people developing chronic kidney disease as well as nine in ten adults being unaware that they have kidney disease (Centers for Disease Control and Prevention, 2019). The kidneys perform vital functions such as removing waste and balancing out the body's chemicals, therefore this disease should be taken very seriously and can have a massive impact on the body (Hamann, 2007). Chronic kidney disease is also known as chronic kidney failure and has been defined several ways over the years. Chronic kidney disease occurs when there is a loss of kidney function over time (Mayo Clinic, 2019). However, more recently kidney disease is medically defined by one's Glomerular Filtration Rate (GFR) (Webster et al., 2017). The GFR comes from a structure that is within the functional part of the kidney which is called the nephron. It is the glomerulus that filters out waste from urine that is formed in the kidneys. If the GFR it is less than 60 mL/min then that is what is now considered the definition of kidney disease (Webster et al., 2017). What can make this disease very lethal is that usually in the early stages of this disease, people do not typically show many signs or symptoms if any at all which means that someone isn't aware until the damage done to their kidney is severe (Mayo Clinic, 2019).

Kidney disease occurs within five stages. These five stages are categorized from stage one, which is mild kidney damage, to stage 5 which is complete renal failure (American Kidney

Fund, 2020). Again, following today's definition, kidney disease is measured by the GFR of the glomerulus within the kidney. This is the rate at which waste and extra fluid is filtered out of the blood to be put into the urine to be excreted out of the body (American Kidney Fund, 2020). The standard GFR of a healthy individual is categorized as 90 mL/min or higher (National Kidney Foundation, n.d.). Stage one of kidney disease is stated as a GFR of 90 or above (American Kidney Fund, 2020). This was stated as normal and means that one's kidneys are healthy and functioning but they could potentially have other signs of kidney disease (American Kidney Fund, 2020). These signs could be that someone has protein in their urine, or have physical damage to their kidneys (American Kidney Fund, 2020) Stage two is determined as a GFR of anywhere from 60 to 80 mL/min and again usually means that the kidneys are functioning properly and at a healthy rate, but that there may be protein in the urine or some form of physical damage to the kidneys (American Kidney Fund, 2020). As discussed earlier, these first stages of kidney disease often times go unnoticed or undetected because the function of the kidney is still within these healthy limits therefore it isn't often that other signs, like protein in the urine, are looked at and that is how the progression begins. Stage three of kidney disease is when one first begins to see changes in the function of their kidney in relation to the GFR. Stage three of kidney disease is defined as a GFR of 30-59 mL/min and is broken into two different substages (American Kidney Fund, 2020). The first substage of stage 3 is a GFR of anywhere from 45 to 59 mL/min, where substage 2 of stage 3 is classified by a GFR of anywhere from 30 to 44 mL/min (American Kidney Fund, 2020). It is in this stage that some may begin to show symptoms like swelling in the hands or feet, lower back pain around the area of the kidneys, and urinating more or less than what one typically does in a day (American Kidney Fund, 2020). This stage is also where the effects of the lack of filtration are shown in other areas of one's health

such as high blood pressure, anemia (or a decrease in the number of red blood cells), or bone disease (American Kidney Fund, 2020). Stage four is classified as a GFR of anywhere from 15 to 29 mL/min and this is where the kidney is not functioning properly and will begin to show major problems and is the last stage before total renal failure (American Kidney Fund, 2020). This is also the time where one will begin to prepare for or consider dialysis or a kidney transplant. Dialysis is used to help clean the blood when the kidneys can no longer adequately perform this function, essentially doing the job of what one's glomerulus would if it was functioning properly (American Kidney Fund, 2020). Stage five is classified as a GFR less than 15 and shows that one is very close to, if not completely in, renal failure (American Kidney Fund, 2020). Chronic renal failure is once again the end stage of kidney disease after it has gotten progressively worse over time. This stage of kidney disease is where if the continued progression of the disease is not intervened on, even in the smallest of ways, changes in all major organ systems will begin and one will die very suddenly (Hamann, 2007).

Kidney Disease can be related to several different underlying conditions, but the two of the biggest conditions that have shown to contribute the most to the development of kidney disease is diabetes and hypertension. Hypertension is shown to be linked to both kidney disease and obesity through a few mechanisms. The first mechanism would be that when someone is obese and develops hypertension, it then puts a strain on all vessels including renal tube pressure causing more sodium to be excreted from the kidney into the urine (Hall et al., 2003). Another mechanism is that obesity will increase the reabsorption of sodium which activates the renin-angiotensin system as well as the sympathetic nervous system, and this activation of the nervous system will then alter the rate of kidney function by slowing it down (Hall et al., 2003). Adipose tissue also could potentially compress the kidneys which will lead to the increase of atrial

pressure causing the secretion and reabsorption of sodium that was mentioned earlier (Hall et al., 2003). Diabetes has also proven to have a major link to kidney disease though blood vessels, nerves, and one's urinary tract (National Kidney Foundation, n.d.). With diabetes effecting the amount of sugar that is in the blood, typically causing an excess amount, when the kidney is filtering out the blood this excess in sugar can clog the blood vessels making it more difficult for adequate filtration to occur (National Kidney Foundation, n.d.). Diabetes can affect one's nerves and, in the case of kidney disease, can damage the nerves that are in connection with someone bladder which tells them whether or not they need to go to the bathroom, leading to an increase of pressure on the bladder causing kidney damage (National Kidney Foundation, n.d.). This holding of one's bladder leads to damage of the urinary tract because the longer that urine is held in the bladder the more bacteria can be formed which can cause bladder or urinary tract infects which sometimes can travel to the kidneys, again causing damage (National Kidney Foundation, n.d.). Other health conditions that could have a part in the development of kidney disease is glomerulonephritis, or inflammation of the part of the kidney that filters through the blood, Interstitial nephritis, or inflammation of the tubes going into the kidneys or other structures of the kidneys, and blockage of the urinary tract for an extended amount of time due to an enlarged prostate, kidney stones, or certain forms of cancers (Mayo Clinic, 2019). These conditions should all be monitored and kept in manageable limits as much as one could to avoid end stage kidney failure.

As mentioned earlier, most of the time people who have kidney disease in the earlier stages are unaware and asymptomatic. It is when symptoms begin to appear that they then realize they have kidney disease or even renal failure through urinary dipstick tests or blood tests (Webster et al., 2017). Some general symptoms include itching, muscle cramps, feeling

nauseous, vomiting, decreased appetite, swelling of the hands or feet, back pain, urinating more or less than that individuals normal, trouble breathing, and trouble sleeping (American Kidney Fund, n.d.). But, with damage to the kidneys, comes damage to almost every other system within the body. Within the cardiovascular system, hypertension, arrhythmias, and congestive heart failure can occur (Hamann, 2007). Within the gastrointestinal system, ulcers within the stomach may appear along with pancreatitis (Hamann, 2007). The respiratory system can be affected by the increased susceptibility to respiratory infection (Hamann, 2007). The skin may be affected by becoming a yellow- bronze color and thin or brittle fingernails (Hamann, 2007). Neurologically one might develop restless legs syndrome, a painful or burning sensation in the legs or the feet, drowsiness, or a shortened memory span (Hamann, 2007). Lastly, within the skeletal system there can be a calcium deficiency leading to bone fractures (Hamann, 2007). When any of these symptoms are recognized, action should be taken immediately because more than likely these are indications that the disease has progressed to an end stage.

Majority of prevention of kidney disease involves controlling those risk factors or conditions that put one at a higher risk for kidney disease. Treatment of high blood pressure has been implemented for all patients who are at risk for, or have, kidney disease (James et al., 2010). The normal that has been set on blood pressure is 130/80 mm but it is recommended that those who have protein in their urine, a sign of kidney disease, should be measuring at a 125/77 mm (Herbert, 2003). This should be done with lifestyle changes along with the uses of anti-hypertensive drugs, which would block the renin-angiotensin system (Herbert, 2003). This also goes along with identifying those who are at the highest risk such as the elderly and those with predisposing conditions or a family history and getting them the proper screenings sooner rather than waiting due to the nature of the disease and late onset of symptoms (James et al., 2010).

Similar changes in lifestyle and diet previously discussed in other sections are also applicable to this disease process as well to help maintain health for as long as possible.

The impact that kidney disease can have on a person is extreme. Since it can have its effect on almost every part of the body it can cause many different areas of someone life to be changed. It was reported that people who had kidney disease, whether they were or were not currently taking dialysis, experienced extreme levels of fatigue which caused them to be less engaged in daily activities (Bonner et al., 2010). This can include anything from cooking and cleaning to more advanced activates like working a job or exercising. With this decrease of energy, the ability to take care of themselves independently declines and results in the patient needing the assistance of someone else, typically someone who is very close with the patient, to step in and help with their care. Someone who is in the end stages of kidney disease or renal failure that require dialysis have several appointments for receiving this type of treatment usually several times a week. This then can mean that the person who is helping take care of the patient will have to work their new schedule around dialysis treatments (Low et al., 2008). Watching a close family member or friend deteriorate while taking care of them physically and emotionally can be draining physically and emotionally on the one providing the support therefore it can have an impact on their mental health as well. It is important that one look at the patient in their entirety as this is a very demanding and grueling disease on the mind and body, while also remembering the health and wellbeing of the patients support system so that the care of everyone is more uplifting and beneficial.

Suicide

Finally, the tenth leading cause of death in the United States is suicide. Suicide is a very saddening and complex topic to talk about. Within the US, there tends to be a lot of stigma

surrounding mental health and the fallout of mental health, which in some cases is suicide. Suicide, by definition, is someone intentionally taking their own life (Mayo Clinic, 2018). Suicide is not discriminatory and can affect any and every one. However, there are two major age groups that are in focus for having a high suicide ideation (thought), suicide attempts (attempting to end one's life and failing), and committing suicide. These groups are young adults ages 18-24 and older adults 45-65 and up (Piscopo, 2017). Reasons that teens are at a high risk of suicide is thought to be due to the increase of stress that more kids and families are under, which then can lead to depression, anxiety and other mood disorders (Kennard, 2018). There is also thought that among teens and younger adults there is more awareness of the harming of one's self, therefore kids might begin to default to these actions in stressful situations (Kennard, 2018). Lastly, in today's time with the advance of technology and the continued and increased use of social media, it is thought that kids are finding it more difficult to escape online bullying or negative messaging (Kennard, 2018). Suicide is thought to be higher among the elderly due to late in life mental or neurological disorders, the increase in physical pain, social isolation related to retirement, feelings of disconnectedness, and loss of spouse or relatives (Conejero et al., 2018).

There are 3 distinct stage that can be used to help identify a person who might be on the verge to commit suicide. This model is known as the Biodyne Model (Cummings & Cummings, 2012). The first beginning stage is the stage of "ideation" which is when the person who is suffering through a trauma or from some source begins to think about suicide more often than before (Cummings & Cummings, 2012). But, a way to identify that they are in this stage is that the fear of physically committing suicide still outweighs their thoughts and therefore obsess instead about dark or depressing music as well as expressing thoughts of death or pain in artistic

ways (Cummings & Cummings, 2012). Stage 2 is distinctly noted as the "planning" stage which is where the dark ideations of the previous stage are then being turned into a specific and thought out plan of how one would commit suicide (Cummings & Cummings, 2012). Those who are frequently around the one who is struggling with suicidal thoughts will notice they are going into a deeper depressive state or will stop expressing or vocalizing their pain even though it is still progressing (Cummings & Cummings, 2012). This stage is where someone will then make the choice whether or not turn to suicide as what they think will be a solution, a decision that is often made only within their own head and not with others (Cummings & Cummings, 2012). Stage 3 is when the person as committed to making the decision of suicide (Cummings & Cummings, 2012). The most dangerous thing about this stage is that the person will become "numb" once making this choice and then seem to improve to their normal self-acting better than they have in a long time because they are no longer wrestling with the decision (Cummings & Cummings, 2012). The family, friends, and even trained professionals can often take this as a good sign in that they are getting better when in fact, it is the exact opposite. Recognizing this stage is very critical because it can be lifesaving.

Alongside these age range specific potential risks, there are other general risk factors and causes that play a role in the choice of suicide. Others who are at risk for suicide are those who have attempted suicide previously, those who have depression or other forms of mental illnesses, those who have a family history of mental illness or suicide, suffered some form of violence or physical/sexual abuse, having access to firearms in the home, and being overly exposed to others who have suicidal thoughts, actions, or mental illness (National Institution of Mental Health, n.d.). Family history of suicide or mental illness is one of the main causes which findings have shown that rates of suicide are significantly higher in families of suicide victims (Runeson &

Asberg, 2003). Drugs and Alcohol are used to alleviate or lesson the feelings of anxiety and depression, but these substances can be what triggers the thought of suicide in some (Murphy, 2005). Sexual or physical abuse can bring up feelings of anger or shame which can lead to a buildup leading to one seeking how to let it out, which can then unfortunately lead to taking one's life (Murphy, 2005). The warning signs of suicide are those that need to be identifiable to those who are around someone battling with ideation, and the person themselves because most of the signs come from within. Warning signs that someone is battling with suicidal ideation can include excessive sadness or moodiness, where one undergoes mood swings or long lasting sadness, sudden calmness (a tell sign that someone has made a decision to go ahead with a thought plan), withdrawal or choosing to be alone and avoiding friends, family, or activities that were once enjoyed, changes in personality or appearance in that someone might speak with a new speed or a sudden slowness coupled with the lack of concern for appearance, exhibiting self-harm behavior such as wreck less driving, unsafe sex, or increase in drug or alcohol abuse, recent trauma or life crisis (situations such as a loss of a person or pet, a divorce or break up, loss of a job, or serious financial problems), and someone who begins to make preparations or threating of suicide (Cleveland Clinic, 2017). Every threat or plan regardless should be taken seriously and proper precautions and steps should be followed.

Preventing suicide first begins with identifying those who are the highest-risk. Identifying these high-risk people allows one to get them to observe their behavior to try and stop the escalation of things before getting to the point of suicide. However, because of the weight of the topic, not many people are sure how to reach out, talk to, or help those who they believe are suffering. So, learning how to interact and reach out with a suicidal person can be key in helping to prevent a loss of life. The first step would be to find a place to talk that is quiet where the

conversation can be had privately (Bertolote, 2000). The person interviewing should also make sure that they have allotted enough time to where the person doesn't feel rushed and also can take their time to explain their feelings in detail (Bertolote, 2000). The person should also reach out and actively listen and just allow the person to talk, which can create trust and give the person a comfortable place as well as a sense of hope (Bertolote, 2000). The person should stay calm, empathize with their feelings, and focus specifically on their feelings (Bertolote, 2000). The next step to prevention would be to assess the risk of suicide. This is where one would need to ask questions such as their current mental state, do they have a plan, and who is their support system (Bertolote, 2000). If someone is a low risk, one would need to offer emotional support and help them work through their feelings as well as focus on the positives and refer them to a professional or doctor and offer ongoing support (Bertolote, 2000). When someone is at a medium risk or stage 2 as mentioned above, one would need to offer emotional support and offer alternative to suicide and help them get help in terms of a psychiatrist, counsellor, or doctor, and give ongoing support (Bertolote, 2000). When someone is identified as a high risk, the person helping should never leave their side, and should talk to the person and contact their caregiver, a mental health professional, or an ambulance as soon as possible (Bertolote, 2000). Other forms of prevention can include pharmaceutical interventions. Lithium is a medication that is used to treat those who show signs of suicidal ideation and is shown to have an antisuicidal effect (Tondo et al., 2000). Everyone can be responsible for identifying the warning signs if the warning signs of suicide and then watching and observing those around them as well as not being afraid to talk openly and honestly with those people when it is necessary. There are also several hotlines available for those who need someone to talk to. The National Suicide Prevention Lifeline is a hotline that is available 24/7 that offers free confidential support for those who are

in distress or going through a crisis. Other campaigns include National Suicide Prevention Week, which is a week that is dedicated to suicide awareness as well as survivors. Having these campaigns and support lines constantly works toward prevention by spreading awareness of those who suffer and the ways that one could offer help and support.

Suicide is a very devastating and difficult decision and situation for the one who is suffering as well as those around them. Whether they ultimately make the choice to end their life or not, it still has a massive impact of family and friends. The family and friends of those who have committed suicide have experienced heightened levels of depression and anxiety following their death (Spillane et al., 2018). It was also shown that family members who are left also experience panic attacks, suicidal thoughts themselves, nightmares and PTSD (Spillane et al., 2018). Adverse health symptoms such as nausea, vomiting, chest pain, physical pain, and breathlessness have been reported (Spillane et al., 2018). It is clear that the same attention and care should be given to those who survive the one who has been lost. In doing this, more lives and peoples' well-being can be saved and that is what is most important in these situations.

One main topic that needs more attention is the stigma around suicide. As unsettling and uncomfortable a conversation it is to have, by talking about it and spreading awareness, lives could be saved. Parents having the conversation with their kids and then kids checking in on their friends could invoke a cycle of comfort and care that can make a more positive outlet for those who seem to struggle.

Conclusion

After reviewing all ten leading causes of death in the United States – heart disease, cancer, unintentional injuries, chronic lower respiratory disease, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease, and suicide – each disease or incident effects

so many people in many different ways (Centers of Disease Control, 2019). One major concern for the overall health American citizens is their low ability to lead long, healthy, and productive lives in relation to the other top six most developed countries (The Commonwealth Fund, n.d.). Fault falls on both citizens and government, however, there is one overarching conclusion to this utmost concern: most of the diseases that claim so many lives in the United States can be prevented by practicing a healthy lifestyle.

The three main aspects of a healthy lifestyle that can help prevent most of the diseases presented in this list include physical activity, nutrition, and sleep. Adjusting just a few every day aspects of life can have tremendous effects on overall health and prevention of diseases and illnesses. According to the American College of Sports Medicine, an individual should participate in at least 150 minutes of regular physical activity a week (Riebe, et al., 2018). Even participating for the minimum 150 minutes a week or at least achieving somewhere close to this amount will greatly increase prevention of these diseases. Nutritionally, guidelines recommend include the following components for developing a healthy eating pattern: a variety of vegetables, fruits, grains, fat-free or low-fat dairy, protein foods, and plant-based oils (United States Department of Health and Human Services, n.d.). The National Sleep Foundation recommends that adults get an average of 7-9 hours of sleep a night (National Sleep Foundation, 2015). If an individual attempt to follow these guidelines and improve to achieve a healthier lifestyle then it will help increase prevention of most of these diseases. All in all, Americans need to begin to seriously look at their health and what they are doing to their bodies in order to make the necessary changes to avoid continuing to diminish their personal health and the health of the nation as a whole.

References

Alzheimer's Association. (2020). Dementia vs. Alzheimer's disease: What is the difference? *Alz.org.* Retrieved from https://www.alz.org/alzheimers-dementia/difference-between-dementia-and-alzheimer-s.

Alzheimer's Association. (2020). Prevention. *Alz.org.* https://www.alz.org/alzheimers-dementia/research_progress/prevention.

Amarenco P., Labreuche, J., Lavallee, P., Touboul P.J. (2004). Statins in stroke prevention and carotid atherosclerosis. *Stroke, 35, 2902-2909.*

America's Health Rankings. (n.d.). Injury deaths. *Americashealthrankings.org.* https://www.americashealthrankings.org/explore/annual/measure/injury_deaths/state/ALL.

American Academy of Allergy, Asthma and Immunology. (2020). Asthma. *Aaaai.org.* Retrieved from https://www.aaaai.org/conditions-and-treatments/asthma.

American Cancer Society. (2019). Cancer facts for women. *Cancer.org*. Retrieved from https://www.cancer.org/healthy/find-cancer-early/womens-health/cancer-facts-for-women.html.

American College of Allergy, Asthma and Immunology. (n.d.). Types of asthma. *Acaai.org*. Retrieved from https://acaai.org/asthma/types-asthma.

American College of Cardiology. (2018). Obesity and cardiovascular disease risk. *Acc.org.* Retrieved from https://www.acc.org/latest-in-cardiology/articles/2018/07/06/12/42/cover-story-obesity-and-cardiovascular-disease-risk.

American Diabetes Association. (2016). Classification and diagnosis of diabetes. *Diabetes Care, 39, S13-S22.*

American Family Physician. (2000). What causes falls in the elderly? How can I prevent a fall? *American Family Physician, 61, 2173-2174.*

American Kidney Fund. (2020). Stages of chronic kidney disease. *Kidneyfund.org.* Retrieved from https://www.kidneyfund.org/kidney-disease/chronic-kidney-disease-ckd/stages-of-chronic-kidney-disease/.

American Stroke Association. (n.d.). About stroke. *Stroke.org.* Retrieved from https://www.stroke.org/en/about-stroke.

Armstrong, R.A. (2013). What causes Alzheimer's disease? *Folia Neuropathol, 51, 169-188.*

Atkinson, M.A. (2012). The pathogenesis and natural history of type 1 diabetes. *Cold Spring Harbor Perspectives in Medicine, 2, a007641.*

Bertolote, J.M. (2000). *Preventing Suicide: A Resource For Primary Health Care Workers.* World Health Organization.

Bierman, D.L., Bagdade, J.D., Porte, Jr., D. (1968). Obesity and diabetes: The odd couple. *The American Journal of Clinical Nutrition, 21, 1434-1437.*

Bonner, A., Wellard, S., Caltabiano, M. The impact of fatigue on daily activity in people with chronic kidney disease. *Journal of Clinical Nursing, 11, 1-4.*

Bottomley, A. (1998). Depression in cancer patients: A literature review. *Eur J Cancer Care (Engl), 7, 181-91.*

British Heart Foundation. (n.d.). Modifiable and non-modifiable risk factors. *Bhf.org.uk.*

Cancer Treatment Centers of America. (n.d.). Breast cancer symptoms. *Cancercenter.com.* Retrieved from https://www.cancercenter.com/cancer-types/breast-cancer/symptoms?invsrc=paid_search_google_tulsa_nonbrand_cancertype_breast_symptoms&t_pur=prospecting&t_src=google-

g&t_con=symptoms&t_re=southwest&t_bud=corporate&t_tar=non_targeted&t_aud=any&t_cam=7882770909&t_adg=86099831190&t_trm=%2Bbreast%20%2Bcancer%20%2Bsign&t_mtp=b&t_pos=1t1&t_ctv=394568505762&t_d=c&t_plc=kwd-295818272091&t_mkt=g-9014668&t_med=online&t_ch=paid_search&t_mdm=click&kxconfid=s8ymtai82&dsktrackerid=43700049410388616&awsearchcpc=1&gclid=EAIaIQobChMIkJqK1bq-5wIVDdbACh0M7ws4EAAYASAAEgLR5PD_BwE&gclsrc=aw.ds.

Centers for Disease Control and Prevention. (2010). *How tobacco smoke causes disease: The biology and behavioral basis for smoking-attributable disease: A report of the surgeon general.* Centers for Disease Control and Prevention.

Centers for Disease Control and Prevention. (2017). Chronic obstructive pulmonary disease includes: Chronic bronchitis and emphysema. *Cdc.gov.* Retrieved from https://www.cdc.gov/nchs/fastats/copd.htm.

Centers for Disease Control and Prevention. (2019). Chronic kidney disease in the United States, 2019. *Cdc.gov.* Retrieved from https://www.cdc.gov/kidneydisease/publications-resources/2019-national-facts.html.

Centers for Disease Control and Prevention. (2019). Heart disease facts. *Cdc.gov.* Retrieved from https://www.cdc.gov/heartdisease/facts.htm.

Centers for Disease Control and Prevention. (2019). Influenza (flu). *Cdc.gov.* Retrieved from https://www.cdc.gov/flu/prevent/misconeptions.htm.

Centers for Disease Control and Prevention. (2019). National center of health statistics: Stats of the state of Kentucky. *Cdc.gov.* https://www.cdc.gov/nchs/pressroom/states/kentucky/kentucky.htm.

Centers for Disease Control and Prevention. (2020). Alcohol and cancer. *Cdc.gov.* Retrieved from https://www.cdc.gov/cancer/alcohol/index.htm.

Centers for Disease Control and Prevention. (2020). Stoke signs and symptoms. *Cdc.org.* Retrieved from https://www.cdc.gov/stroke/signs_symptoms.htm.

Chuive, S.E., Rexrode, K.M., Spiegelman, D., Logroscino, G., Manson, J.E., Rimm, E.B. (2008). Primary prevention of stoke by healthy lifestyle. *Circulation, 118, 947-954.*

Cleveland Clinic. (2017). Recognizing suicidal behavior. *Clevelandclinic.org.* Retrieved from https://my.clevelandclinic.org/health/articles/11352-recognizing-suicidal-behavior.

Cleveland Clinic. (n.d.). Coronary artery disease. *Clevelandclinic.org.* Retrieved from https://my.clevelandclinic.org/treatment-guides/14-0031-coronary-artery-disease-guide?_ga=2.139280755.1162795819.1580756896-1196318733.1580756896.

Community Preventive Services Task Force. (2015). Motor vehicle-related injury prevention. *Thecommunityguide.org*. Retrieved from https://www.thecommunityguide.org/sites/default/files/assets/What-Works-Factsheet-MotorVehicle.pdf.

Conejero, I., Olie, E., Courtet, P., Calati, R. (2018). Suicide in older adults: Current perspectives. *Clinical Interventions in Aging, 13, 691-699.*

Cummings, N.A. & Cummings, J.L. (2012). *Refocused psychotherapy as the first line intervention in behavioral health*. New York, NY: Routledge.

Daviglus, M.L., Bell, C.C., Berrettini, W., Bowen, P.E., Connolly, E.S., Cox, N.J., Dunbar-Jacob, J.M., et al. (2010). National Institute of Health state-of-the-science conference statement: Preventing Alzheimer's disease and cognitive decline. *Annals of Internal Medicine, 1-22.*

Degnan, L.A. (2013). Sudden infant death syndrome. *U.S. Pharmacist, 38, HS14-HS16.*

Dela Cruz, C.S., Tanoue, L.T., Matthay, R.A. (2011). Lung cancer: Epidemiology, etiology, and prevention. *Clinics in Chest Medicine, 32, 605-644.*

Eckel, R.H. & Krauss, R.M. (1998). American heart association call to action: Obesity as a major risk factor for coronary heart disease. *Circulation, 97, 2099-2100.*

Elder, RW., Shults, RA., Sleet, DA., Nichols, JL., Thompson, RS., Rajab, W. (2004). Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involved crashes: A systematic review. *American Journal of Preventive Medicine, 27, 57-65*.

Friedemann-Sanchez, G., Griffin J.M., Partin, M.R. (2007). Gender differences in colorectal cancer screening barriers and information needs. *Health Expectations, 10.*

Frostgard, J. (2013). Immunity, atherosclerosis and cardiovascular disease. *BMC Medicine, 11, 117.*

Greenlund, K.J., Keenan, N.L., Giles, W.H., Zheng, Z.J., Neff, L.J., Croft, J.B., Mensah, G.A. (2004). Public recognition of major signs and symptoms of heart attack: Seventeen states and the US Virgin Islands. *American Heart Journal, 147, 1010-1016.*

Hall, J.E., Kuo, J.J., da Silva, A.A., de Paula, R.B., Liu, J., Tallam, L. (2003). Obesity-associated hypertension and kidney disease. *Pathophysiology of Hypertension, 12, 1-8.*

Hamann, B. (2007). *Disease: Identification, Prevention, and Control.* McGraw-Hill.

Hebert, C.J. (2003). Preventing kidney failure: Primary care physicians must intervene earlier. *Cleveland Clinic Journal of Medicine, 70, 337-344.*

Holger, J. (2013). Memory loss in Alzheimer's disease. *Dialogues Clinical Neuroscience, 2013, 15, 445-454.*

Hood, K.K., Huestis, S., Maher, A., Butler, D., Valkening, L., Laffel, L.M.B. Depressive symptoms in children and adolescents with type 1 diabetes. *Diabetes Care, 29, 1389-1391.*

Huang, Y.T., Lin, X., Liu, Y., Chirieac, L.R., McGovern, R., Wain, J., Heist, R., et al. (2011). Cigarette smoking increases copy number alterations in nonsmall-call lung cancer. *PNAS, 108, 16345-16350.*

Institute of Medicine (US); Stoto MA., Behrens R., Rosemont C., editors. (1990). *Healthy People 2000: Citizens Chart the Course.* Washington (D.C.): National Academics Press.

James, M.T., Hemmelgarn, B.R., Tonelli, M. (2010). Early recognition and prevention of chronic kidney disease. *The Lancet, 375, 1296-1309.*

John Hopkins Medicine. (n.d.). Opioid addiction. *Hopkinsmedicine.org.* Retrieved from https://www.hopkinsmedicine.org/opioids/what-are-opioids.html.

Johns Hopkins Medicine. (n.d.). Chronic bronchitis. *Hopkinsmedicine.org.* Retrieved from https://www.hopkinsmedicine.org/health/conditions-and-diseases/chronic-bronchitis.

Johns Hopkins Medicine. (2020). Effects of stroke. *Hopkinsmedicine.org.* Retrieved from https://www.hopkinsmedicine.org/health/conditions-and-diseases/stroke/effects-of-stroke.

Karlsson, M.K., Magnusson, H., von Schewelov, T., Rosengren, B.E. (2013). Prevention of falls in the elderly: A review. *Osteoporosis International, 24, 747-762.*

Kawasaki, E., Abiru, N., Eguchi, K. (2004). Prevention of type 1 diabetes: From the viewpoint of beta cell damage. *Diabetes Research, 66, S27-S32.*

Kinsman, R.A., Yaroush, R.A., Fernandez, E., Dirks, J.F., Schnocket, M., Fukuhara, J. (1983). Symptoms and experiences in chronic bronchitis and emphysema. *Chest, 83, 755-761.*

Low, J., Smith, G., Burns, A., Jones, L. (2008). The impact of end-stage kidney disease on close persons: A literature review. *Clinical Kidney Journal, 1, 67-79.*

Mackay, J. & Mensah, G. (2004). *The atlas of heart disease and stroke.* Brighton, UK: World Health Organization.

Mayo Clinic. (2017). Bronchitis. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/bronchitis/symptoms-causes/syc-20355566.

Mayo Clinic. (2018). Alzheimer's disease. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/alzheimers-disease/symptoms-causes/syc-20350447.

Mayo Clinic. (2018). Cancer. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588.

Mayo Clinic. (2018). Heart disease. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/heart-disease/symptoms-causes/syc-20353118.

Mayo Clinic. (2018). Sudden infant death syndrome. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/sudden-infant-death-syndrome/symptoms-causes/syc-20352800.

Mayo Clinic. (2018). Suicide and suicidal thoughts. *Mayoclinic.org*. Retreived from https://www.mayoclinic.org/diseases-conditions/suicide/symptoms-causes/syc-20378048.

Mayo Clinic. (2019). Chronic kidney disease. Mayoclinic.org. Retrieved from https://www.mayoclinic.org/diseases-conditions/chronic-kidney-disease/symptoms-causes/syc-20354521.

Mayo Clinic. (2019). Emphysema. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/emphysema/symptoms-causes/syc-20355555.

Mayo Clinic. (2019). Influenza (flu). *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/flu/symptoms-causes/syc-20351719.

Mayo Clinic. (2020). Stoke. *Mayoclinic.org.* Retrieved from https://www.mayoclinic.org/diseases-conditions/stroke/symptoms-causes/syc-20350113.

Merriam-Webster. (n.d.). Carcinogen. *Marriam-webster.com.* Retrieved from https://www.merriam-webster.com/dictionary/carcinogen.

Milner, K., Funk, M., Richards, S., Wilmes, R.M., Vaccarino, V., Krumholz, H.M. (1999). Gender differences in symptom presentation associated with coronary heart disease. *The American Journal of Cardiology, 84, 396-399.*

Ministry of Transportation Malaysia. [Drinking and driving advertisement]. Retrieved from https://www.pinterest.com/pin/545217098611955548/.

Monto, A.S., Gravenstein, S. Elliot, M. (2000). Clinical signs and symptoms predicting influenza infection. *Archives of Internal Medicine, 160, 3243-3247.*

Mor, V., Allen, S., Malin, M. (1994). The psychosocial impact of cancer on older versus younger patients and their families. *CANCER,* 74.

Munoz, D.G., Feldman, H. (2000). Causes of Alzheimer's disease. *CMAJ, 162, 65-72.*

Murphy, K. (2005). What can you do to prevent teen suicide? *Nursing2005, 35, 43-45.*

National Cancer Institute. (2019). Common cancer types. *Cancer.gov.* Retrieved from https://www.cancer.gov/types/common-cancers.

National Cancer Institute. (n.d.) Cancer statistics. *Cancer.gov*. Retrieved from https://www.cancer.gov/about-cancer/understanding/statistics.

National Cancer Institute. (n.d.). Physical activity and cancer. *Cancer.gov.* Retrieved from https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/physical-activity-fact-sheet.

National Foundation for Cancer Research. (2019). National men's health week. *Nfcr.org.* Retrieved from https://www.nfcr.org/blog/national-mens-health-week-signs-of-cancer/.

National Highway Traffic Safety Administration. (2019). How alcohol affects driving ability. *Nhtas.gov.* Retrieved from https://www.nhtsa.gov/risky-driving/drunk-driving.

National Institute of Mental Health. (n.d.). Suicide in America: Frequently asked questions. *Nimh.nih.gov.* Retrieved from https://www.nimh.nih.gov/health/publications/suicide-faq/index.shtml.

National Institute of Neurological Disorders and Stroke. (2020). Brain basics: Preventing stroke. *Ninds.com.* Retrieved from https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Preventing-Stroke.

National Institute on Aging. (2019). What causes Alzheimer's disease? *Nia.gov.* Retrieved from https://www.nia.nih.gov/health/what-causes-alzheimers-disease.

National Kidney Foundation. (2014). Diabetes and kidney disease (stages 1-4). *Kidney.org*. Retrieved from https://www.kidney.org/atoz/content/Diabetes-and-Kidney-Disease-Stages1-4.

National Sleep Foundation. (2015). National Sleep Foundations recommends new sleep times. *Sleepfoundation.org*. Retrieved from https://www.sleepfoundation.org/press-release/national-sleep-foundation-recommends-new-sleep-times.

Noehren, T.H., Barach, A.L., Brantigan, O.C., Smart, R.H. (1964). Pulmonary emphysema: Prevention and care. *Chest, 45, 492-502.*

Ozougwu, J.C., Obimba, K.C., Belonwu, C.D., Unakalamba, C.B. (2013). The pathogensis and pathophysiology of type 1 and type 2 diabetes mellitus. *Journal of Physiology and Pathophysiology, 4, 46-57.*

Pearson, T.A., Blair, S.N., Daniels, S.R., Ecket, R.H., Fair, J.M., Fortmann, S.P., Franklin, B.A., et al. (2002). AHA guidelines for primary prevention of cardiovascular disease and stroke: 2002 update. *Circulation, 106, 388-391.*

Pirl, W.F. (2004). Evidence report on the occurrence, assessment, and treatment of depression in cancer patients. *JNCI Monographs, 32, 32-39.*

Piscopo, K.D. (2017). Suicidality and death by suicide among middle-aged adults in the United States. *Samhas.gov.* Retrieved from https://www.samhsa.gov/data/sites/default/files/report_3370/ShortReport-3370.html.

Pouwer, F. (2010). Does emotional stress cause type 2 diabetes mellitus? A review from the European Depression in Diabetes (EDID) Research Consortium. *Discovery Medicine, 2, 1-6.*

Prostate Cancer Foundation. (n.d.). Prostate gland. *Pcf.org.* Retrieved from https://www.pcf.org/about-prostate-cancer/what-is-prostate-cancer/prostate-gland/.

Rathore, S.S., Hinn, A.R., Cooper, L.S., Tyroler, H.A., Rosamond, W.D. (2002). Characterization of incident stroke signs and symptoms: Findings from the atherosclerosis risk in communities' study. *Stroke, 33, 2718-2721.*

Reichman, W.E., Coyne, A.C., Amirneni, S., Molino, B., Ergan, S. (1996). Negative symptoms in Alzheimer's disease. *The American Journal of Psychiatry, 153, 424-426.*

Reisberg, B., Borenstein, J., Salob, S.P., Ferris, S.H. (1987). Behavioral symptoms in Alzheimer's disease: Phenomenology and treatment. *The Journal of Clinical Psychiatry, 48, 9-15.*

Riebe, D., Ehrman, J.K., Liguori, G., Magal, M. (2018). *ACSM's Guidelines for Exercise Testing and Prescription.* 10th ed. Philadelphia, PA: Wolters Kluwer.

Riserus, U., Willett, W.C., Frank, H.B. (2009). Dietary fats and prevention of type 2 diabetes. *Progress in Lipid Research, 48, 44-51.*

Runeson, B. & Asberg, M. (2003). Family history of suicide among suicide victims. *American Journal of Psychiatry, 1-7.*

Runyan, CW., Casteel, C., Perkis, D., Black, C., Marshall, SW., Johnson, RM., Coyne-Beasleu, T., et al. (2005). Unintentional injuries in the home in the United States: Part I: Mortality. *American Journal of Preventive Medicine, 28, 72-79.*

Santo Tomas, L.H. (2011). Emphysema and chronic obstructive pulmonary disease in coal miners. *Current Opinion in Pulmonary Medicine, 17, 1-4.*

Schnitzer, P.G. (2006). Prevention of unintentional childhood injuries. *American Family Physician, 74, 1864-1869.*

Simon, S. (2019). Facts & figures 2019: US cancer death rate has dropped 27% in 25 years. *American Cancer Society*. Retrieved from https://www.cancer.org/latest-news/facts-and-figures-2019.html.

Spillane, A., Matvienko-Sikar, K., Larkin, C., Corcoran, P., Arensman, E. What are the physical and psychological health effects of suicide bereavement on family members? An observational and interview mixed-methods study in Ireland. *BMJ Open, 8, 1-32.*

Stewart, J., Manmathan, G., Wilkinson, P. (2016). Primary prevention of cardiovascular disease: A review of contemporary guidance and literature. *Journal of the Royal Society of Medicine Cardiovascular Disease, 6, 1-9.*

Stiver, G. (2003). The treatment of influenza with antiviral drugs. *Canadian Medical Association Journal, 168, 49-57.*

Stokes, A. & Preston, S.H. (2017). The contribution of rising adiposity to the increasing prevalence of diabetes in the United States. *Preventative Medicine, 101, 91-95.*

Surgeons General. (1996). Physical activity and health report. *Cdc.gov.* Retrieved from https://wonder.cdc.gov/wonder/prevguid/m0042984/m0042984.asp#head001000000000000.

The Commonwealth Fund. (n.d.). U.S. ranks last among seven countries on health system performance measures. *Commonwealthfund.org.* Retrieved from https://www.commonwealthfund.org/publications/newsletter-article/us-ranks-last-among-seven-countries-health-system-performance.

Tondo, L., Ghiani, C., Albert, M. (2000). Pharmacologic interventions in suicide prevention. *Journal of Clinical Psychiatry, 62, 51-55.*

Trichopoulous, D., Li, F.P., Hunter, D.J. (1996). What causes cancer? *Scientific America, 275, 80-87.*

U.S. Department of Health and Human Services. (n.d.). Dietary guidelines for Americans. *Hhs.gov.* Retrieved from https://www.hhs.gov/fitness/eat-healthy/dietary-guidelines-for-americans/index.html.

U.S. Department of Health and Human Services. (n.d.). Facts & Statistics. *Hhs.gov.* Retrieved from https://www.hhs.gov/fitness/resource-center/facts-and-statistics/index.html.

Vaarala, O., Atkinson, M.A., Neu, J. (2008). The “perfect storm” for type 1 diabetes: The complex interplay between intestinal microbiota, gut permeability, and mucosal immunity. *Diabetes, 57, 2555-2562.*

van der Poll, T., Opal, S.M. (2009). Pathogenesis, treatment, and prevention of pneumococcal pneumonia. *The Lancet, 374, 1543-1556.*

Van Wyk, H. (2016). The common cold and influenza. *South African’s Pharmacist’s Assistant, 16, 1-3.*

Wall, H.K., Beagan, B.M., O’Neill, H.J., Foell, K.M., Boddie-Willis, C.L. (2008). Addressing stroke signs and symptoms through public education: The Stroke Heroes Act FAST campaign. *Preventing Chronic Disease, 5, A49.*

Webster, A.C., Nagler, E.V., Morton, R.L., Masson, P. (2017). Chronic kidney disease. *The Lancet, 389, 25-31.*

Weiner, S., Malek, S.K., Price, C.N. (2017). The opioid crisis and its consequences. *Transplantation, 101, 678-681.*

West Virginia Department of Health and Human Resources. (2006). Chronic lower respiratory disease: A national burden. *Wvdhhr.org.* Retrieved from http://www.wvdhhr.org/bph/hsc/pubs/other/clrd/national.htm.

World Cancer Research Fund. (n.d.). Poor diet and cancer risk. *Wcrf-uk.org.* Retrieved from https://www.wcrf-uk.org/uk/preventing-cancer/what-can-increase-your-risk-cancer/poor-diet-and-cancer-risk.

World Health Organization. (n.d.). Chronic respiratory diseases. *Who.int.* Retrieved from https://www.who.int/health-topics/chronic-respiratory-diseases#tab=tab_1.

Yew, K.S. & Cheng, E.M. (2015). Diagnosis of acute stroke. *American Family Physician, 91, 528-536.*

Yiannopoulou, K.G., Papageorgiou, S.G. (2012). Current and future treatments for Alzheimer's disease. *Therapuetic Advances in Neurological Disorders, 1-31.*

Yusuf, S., Srinath, R., Ounpuu, S., Anand, S. (2001). Global burden of cardiovascular diseases. *Circulation, 104, 2855-2864.*